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INDIVIDUALIZED LONGEVITY PROMOTION (PRECLINICAL MEDICINE) *

WILLIAM G. EXTON, M.D.

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Practice of medicine, in its last analysis, aims to promote longevity. This function, however, is not always recognized by the practitioner, because of his absorption in the labors of alleviating pain and meeting clinical emergencies. As a matter of fact, the profession has been so preoccupied in caring for the sick that important functions of the general practitioner have been left open to usurpation by more or less well intentioned outside agencies, which engage in exploiting those phases of longevity promotion concerned with keeping the well well, and preventing or postponing the development of clinical conditions in the near sick.

This work is characterized by the great emphasis laid on personal health values to be gained by as wide an application as possible of personal hygiene, prophylaxis, prevention, and eventually also of earlier or, as Sir James Mackenzie puts it, "predispositional diagnosis."

If one agrees with the view I hold that the development of this field means nothing more or less than a broadening of the scope of the practice of medicine, it will be clearly seen that progress demands not only the recognition of its existence, but necessarily also the active interest and participation of the profession in those phases of practice which may be called "preclinical medicine."

In a consideration of preclinical practice, a few of the most definite impressions received from a study of the seven years' experience of the Prudential Insurance Company in providing its policyholders with urinalyses are of interest.

Thus, it became evident that mere urinalysis is unsatisfactory because at times it leads to needless apprehension, and, what is more serious, also at times misleads people to their detriment, because many serious diseases show no sign in the urine.

From various sources it was learned that there is a widespread and real demand for authoritative information concerning eugenics, rejuvenation, hygiene, climatology, sex, nutrition, fads and nostrums as related to medical practice.

Requests for information along these many lines came from inexperienced as well as overexperienced persons, and from physicians who were dealing with perplexing conditions or personalities. From correspondence with medical men, it was learned that the interest of an insuring company in the length of a life accorded it a unique prestige, which might be brought to exert a beneficial effect on the health of many people, especially those who have strayed into cults or into the hands of quacks and mail order therapists.

It was possible to help a number of these, as well as others who might be classed as misdirected or discouraged patients needing assurance that treatment prescribed by the physician was necessary and proper. Typical of these were insufficiently instructed patients with diabetes, and patients refusing necessary surgery.

The correspondence also developed a number of other opportunities of assisting physicians and patients, such as additional urinalysis, other laboratory tests, correlation of laboratory and clinical findings, and preparation of dietary lists.

PERSONS WHO HAVE MADE USE OF PRECLINICAL SERVICE

Most interesting and illuminating, however, were the types of people who availed themselves of the Prudential service. They might be classified as:

1. Prudent, healthy persons. Obviously, those who have no discoverable defects cannot be expected to reap immediate benefits from any kind of examination. These people constitute the ideal preclinical material, however, because, possessing good health, they alone offer the opportunity for preserving it. The special advantages of examining this class are clearly exemplified by the numerous instances in which persons pass insurance examinations flawlessly one year but must be rejected the next.

2. Prudent persons who think themselves healthy but, nevertheless, have impairments. This is a comparatively small group, but furnishes practically the only material that can be expected to show an increased longevity as the immediate result of health examinations.

3. Well and near-well persons, who believe themselves more or less sick. With others, this group contains the neurasthenics, hypochondriacs, faddists, sexy and finicky people with fear and other complexes. They are generally the first to respond to innovations of all kinds and do not, as a rule, suffer for want of medical information or misinformation. They give splendid mortality results, because they have complaints without corresponding impairments.

4. Well persons, who think of their health only when bothered with some acute or self-limiting condition, such as boils or colds. They have the effect of simultaneously shrinking mortality results and swelling the list of impairments found on examination.

5. Persons with obstinate or chronic complaints who are inexperienced, careless, easily discouraged or unfor-

* From the Prudential Longevity Service.

tunate in not having fallen into the right hands. They try any available means to check up their physicians, and lose the great advantages of early treatment by wasting time on nostrums.

6. The sick. They, of course, do not come within the purview of preclinical medicine.

A tabulation showing ages, causes of death and urinary findings was made, but further statistical study was not undertaken because our interest was clinical rather than mathematical. Of the deaths among those who used the Prudential urinalysis service during these first two years, two thirds (167) lived to be over 50. Of these, almost one fifth (thirty-two) were older than 70, pointing to a preponderance of older lives. Among the 6,200 exposed slightly over six years, there were in all 240 deaths in about 39,000 years of exposure, as an actuary would put it; an astonishing result, which happens to be actually more favorable than the published results following full physical examinations by the Life Extension Institute. This showing, however, does not indicate that urinalyses are more effective than full medical examinations.

It is necessary to note that up to the present time the various health services have attracted a special lot of people and not the usual run of people generally. This factor, known as self-selection, is so important in coloring results as to make misleading any calculations based thereon regarding the beneficial effect of health examinations on mortality. The people who have used health services up to the present time constitute a group which would have given a favorable mortality under any circumstances, and only as time goes on and the examinations cover a general run of the population will dependable statistical conclusions become possible.

ATTITUDE OF PRACTITIONERS

One of the reasons preclinical medicine has not yet received from practitioners the scientific attention which it deserves lies in the embarrassment on the part of many by a sort of financial complex involved in asking patients to come for examinations which mean additional fees that some patients may think unnecessary. It may be pointed out that this difficulty will disappear as the public becomes more educated with regard to preclinical medicine, and that the general practitioner has more power than any one else to accelerate progress.

Another reason seems to be connected with the character of the literature of health examinations, which savors of salesmanship and teems with superficialities that carry no appeal to the critical or scientifically minded. It cannot be too strongly emphasized, therefore, that this new development rests securely on a scientific basis than which none is firmer; namely, common knowledge and experience.

As Dr. Rankin says, "There is no sharp line of distinction between health and disease. One fades by almost imperceptible gradations into the other." This fact has been truthfully interpreted by Little[1] in his statement that "the significance lies in treating the human machine as one requiring continuous care and not merely spasmodic attention upon a breakdown."

From this standpoint, a health examination cannot be regarded as otherwise than a scientific and prudent procedure deserving of the careful attention and active interest of every well meaning physician.

It is worthy of note that the first concrete and definite proposal to make a practice of examining the healthy was made by Dr. George M. Gould,[2] an oculist of Philadelphia, in a paper entitled "Personal Biological Examinations," which was read before the Section on Practice of Medicine of the American Medical Association twenty-three years ago. This paper contains, with other suggestive material which no student of health examinations can afford to miss, all of the valid arguments which have since been used to exploit health examinations. Thus, he states that:

> All good medicine inevitably tends to become preventive medicine; all good physicians labor to stop disease before it arrives. The whole ingenuity of the trained diagnostician is expended on the problem of the earlier symptom. He is the greatest discoverer who finds the *presymptom*, or the symptom of a symptom. The greatest therapist is he who cures before the disease exists, he who starves the bacillus to death, he who stops the evil habit, thus preventing the malfunction which becomes organic disease. . . . There are a hundred known intimations of oncoming disease, but there are a thousand undiscovered *presymptoms*.

The connotation involved in the concept *presymptom* is that borderline field between health and disease in which physicians are, or should be, constantly struggling to function successfully with the aid of earlier and earlier diagnosis. Any tendency to partition this field arbitrarily and to take a part of it out of the hands of the practitioner must result in depriving the preclinical examination of its greatest scientific and humanitarian value, because physician and patient would thereby lose the invaluable knowledge and advantages to be gained by making repeated examinations of the same individual in health and in sickness.

Longevity cannot, of course, be increased by health examinations unless the knowledge and experience developed become public property within the profession, and scientific values are bound to be lost if others than the practitioners do the work, because an examination must then degenerate into a routine mechanical search for indications for treatment. Under such circumstances a clinical diagnosis is, of course, impossible, and an inadequate regional diagnosis is substituted for it, which merely points a finger at a part of a person's anatomy and tells him to go to his physician to have him find out what it means and treat it. Such an examination is, of course, incomplete and, even with the best intentions, leads to treatment without diagnosis, because of the inherent difficulties in distinguishing between hygiene and therapy.

No matter how thorough or technically correct an examination is made, the utmost result that can be expected of it is limited to the efficiency of the physician selected by a patient to treat him, and treatment can be effective only to the extent of the correctness of that physician's diagnosis. The health examiner's diagnosis must, therefore, be accepted, rejected or corrected by the family physician to conform with his personal judgment. Thus, any other examining agency than the practitioner becomes in the last analysis a superfluous agent for directing a man to go to his physician.

As a result of the family physician's prejudices against an outsider, whom he naturally regards as interfering with his capacities, the patient often suffers by being left suspended, as it were, in doubt and worry between conflicting diagnoses and advice. In all fairness, however, the physician who does not teach and

1. Little: Tr. Actuarial Soc. of America **15**: 183, 1914.

2. Gould, G. M.: A System of Personal Biologic Examinations the Condition of Adequate Medical and Scientific Conduct of Life, J. A. M. A. **35**: 134 (July 21) 1900.

encourage the habit of periodic examinations among his patients should be prepared to accept with equanimity the relegation of this phase of practice to outside agencies, because nothing is more certain than that preclinical medicine is bound to increase in scope and importance.

Meltzer and others objected to periodic examinations on the ground of their having the effect of creating in many people unnecessary worry and alarm. They had in mind, of course, the many psychologic imponderables that go into the making of a human personality, and the dominating rôles these play in symptomatology and diagnosis. The family physician, being accustomed to reckon with personality idiosyncrasies and human nature and to treat his patient as well as the disease is, therefore, the best fitted to avert such dangers, because the strange examiner is necessarily restricted to looking on people as mere subjects of observation.

In the sense that even the healthiest expect to be ill some time, the word "patient" need not be synonymous with the word "sick." If all the information about a person gleaned from periodic examinations made during years of health is in the keeping of the attending physician when illness comes, it is not lost at a time when it may prove to be the controlling guide to correct diagnosis and successful treatment. It is a matter of experience that the significance of an abnormality or symptom is best determined by correlating it with previous findings, and, therefore, the periodic examination may be made to extend its benefits into the sickroom if the person has the physician who will treat him in sickness know him also in health.

TWO CLASSES OF SUBJECTS

For some years it has been our practice to regard persons with whom we have come into contact as subjects to be kept alive, and we have tried by inquiry and examination to decide what ways and means would be likely to prove most effectual in prolonging each life. The material was particularly instructive when divided into two main groups: those with symptoms and those without symptoms.

The first group, it is apparent, is not within the province of preclinical medicine, because the person with symptoms or complaints wants a cure, which depends on treatment based on a clinical diagnosis. It may be pointed out, however, that the members of this group may be helped to longer life by enlightenment as to the benefits of consulting their physicians early and the dangers of delay. The importance of determining the significance of early but often vague symptoms or complaints is a factor in longevity promotion which profession and laity alike would profit by realizing. Thus, in our experience, "lack of pep" was the only symptom of a number of patients with advanced diabetes, one of whom had ketonuria and 10 per cent. sugar and had not consulted a physician in years, having no idea that he was diabetic.

The second group is of greater interest, because it includes all the persons who have no symptoms or complaints, but who are, nevertheless, affected by degenerative and other progressive diseases that are insidious in their incipience. Focal infections are prominent in this group.

Investigation of the symptomless teaches that the discovery of such conditions among them is almost always made by means of some kind of laboratory test. Some years ago, in the course of a study of albuminuria, about 10,000 insurance examinations made by qualified examiners were reviewed, and at that time the rarity of detecting abnormal physical signs by examining people who stated that they had no symptoms was noted as striking. No statistical information bearing directly on this point seems to be available, but the large percentage of urinary impairments reported by agencies making health examinations is in close correspondence with clinical and insurance experiences, which indicate that persons without symptoms or complaints do not usually show abnormal physical signs.

It is also interesting to note, in passing, that when physical signs are found in the symptomless cases, the significance is generally doubtful and requires extended clinical observation for estimation, because the identical sign does not have the same pathologic meaning in every individual. Thus, an atypical note over the pulmonary apexes or a deviation from the ideal position of the heart beat, which may be perfectly normal for some persons, is apt to be a pitfall of unnecessary alarm when interpreted in a routine way. It is thus apparent that the discovery and estimation of the significance of impairments in the symptomless is greatly dependent on clinical pathology.

HELPFULNESS OF THE LABORATORY

The growing importance of the laboratory in diagnosis and treatment is an outstanding development of the practice of medicine which for some time has been regarded by those interested in medical education and progress as a difficulty because the weakest link in the scientific armor of the general practitioner is clinical pathology.

The practitioner cannot, of course, be expected to have either the expensive and elaborate equipment or the time-consuming training of a competent clinical pathologist; nor do the exigencies of his labors with the sick favor him with the time and moods required for carrying out technical procedures and exact manipulations. The general practitioner does his duty when he is alert to the usefulness of clinical pathology and is willing to take advantage of it and to correlate laboratory results with symptomatology, and especially to use the laboratory in seeking for the significance of vague and early symptoms.

Clinical pathology represents an array of facts and procedures, the offspring of research, and bridges the gulf between research laboratory and bedside. New facts and methods are constantly being brought to light which afford physicians who make use of them a closer and truer insight into diagnosis and treatment, and it is therefore incumbent on all well meaning physicians to add to their keenness of observations and clinical acumen the advantages which clinical pathology have for physician and patient. In the preclinical field of practice this is a matter of extreme importance, because the helpfulness of the laboratory appears to be in inverse ratio to the severity and uncertainty of symptoms and complaints. Thus, the Wassermann test has a specific value in obscure cases, and blood counts often explain mere tendencies to headache and undue fatigue.

SCOPE OF EXAMINATION

Undoubtedly, the type of examination for the presumably healthy will change with experience, wider usage and increasing familiarity on the part of laity and profession. Certainly new discoveries will influence the technic, which has nothing mysterious about it. The gist of preclinical medicine lies in paying attention to minor complaints and observations which have hitherto

not been of absorbing interest to those who have considered themselves only properly concerned with active illness, because only by knowing the habits and everyday experiences of an individual is it possible to correct and prevent tendencies to malfunction and organic disease.

The examination itself need not be extended or time consuming if its purpose is kept in mind, and there is nothing about the health examination that differs from the clinical excepting the mental attitude with which one undertakes the examination of the healthy. There seems to be an impression among some practitioners that health examinations require special qualifications, such as those of life insurance examiners. In my opinion there is nothing in this notion. On the contrary, it is my belief that any physician worthy of the name can do as full justice to his clients in the preclinical field as he can in the clinical.

In the examination of the healthy, a few simple tests suffice to decide on the normality of vision, hearing and special senses. Simple postural tests are already in routine use in many schools, and are worth while because it is well established that postural defects are sometimes symptomatic of local constitutional weakness. They can be made in a few moments, even with investigation of foot architecture. To test out the major reflexes and mark the absence or presence of enlarged glands takes likewise but little time. Nutrition is an especially important feature of the health examination, because even perfectly healthy persons need enlightenment about fads and fallacies, the advantages and meaning of a mixed diet, and the dangers of the very common tendency to overeat. An eye to overweight, undernutrition, anaphylactic phenomena, etc., frequently sees means of correcting unhealthy inclinations. To go over the heart and lungs does not take an experienced physician long, and freedom from local tenderness or tumefaction in the abdomen is quickly ascertained. The conditions of the mouth, teeth and nasopharynx are so much a part of present routine as to need no comment. No examination is now complete without blood pressure observations, which are with advantage correlated with some form of exercise test. Tests for albumin and sugar in the light of the specific gravity suffice for urinalysis, but microscopic examination is always desirable.

Certainly, this routine is nothing more than what physicians are already in the habit of doing when patients come to them for relief of symptoms. Only the purpose of the health examination and the attitude of the practitioner are different. With experience and insight into human nature, the examination of the well will be found not a whit less interesting than the examination of the sick, and I am sure that current misapprehensions will quickly disappear from the minds of those practitioners who will take an active interest in running down the meaning of minor or what have hitherto been regarded as trivial complaints or symptoms. They will soon learn the necessity of thoroughness in concentrating interest on the slight departures from the normal which characterize the health examination.

It would be an educational and interesting experiment to add to the ambulant clinics of hospitals a department in which physicians would rotate and in which apparently trivial and minor disturbances of function would receive especial consideration and study with a view to learning the meanings of such presymptoms as undue tendency to fatigue, occasional indigestion, doubtful urinary findings, trivial headaches and vertigos, habit discomforts, etc. Clues to these and other needs of the preclinical patient are developed best and without loss of time by having the patient fill in a form before being examined.

In planning the Prudential Longevity Service, which aims to encourage the establishment and maintenance of the relationship of patient and physician by scientific cooperation with its members and their personal physicians in both preclinical and clinical fields, several forms designed along different lines were submitted to a number of persons selected as representative of various types of the population. These experiments were somewhat in the nature of psychologic tests to determine what kind of questions would develop the best information with the least perplexity to the individual. The results were unequivocal in favor of forms as free as possible from specific questions, and framed to be more of a reminder than anything else. These invited full and free expression under such general headings as:

Occupation.—Nature of? Number of hours? Night or day? Any nervous strain or overwork? Sedentary?

Exercise.—Recreation hours? Character, regularity and frequency?

Diet.—Any restrictions? If so, by choice or by lay or medical advice? Appetite good, fair, or poor?

Sleep.—Natural? Regular? Sufficient?

Bowels.—Normal daily movements?

Tobacco.—If used, to what extent? Any ill effects noted?

Alcohol.—If used, kind and amount daily? Regularly? Before breakfast? Past habits?

Other Beverages.—How much liquid, water, tea, coffee, soft drinks, etc., consumed in twenty-four hours? Any thirst?

"Patent Medicines" and Drugs.—If used regularly, state kind and amount.

Urine.—How much and how often voided during the day? During night? Any local trouble or difficulty in passing? Do you have any tendency to colds, sore throat, headaches, indigestion, shortness of breath or "tired feeling"? Have you had any serious illness or operation? Tell all about it, giving nature and time of complaints.

The information developed by such forms proved more complete and orderly than those which called for yes and no answers, or those made up of specific questions, which puzzle many. In thousands of cases that have come under our observation, such forms have proved thoroughly satisfactory.

For recording physical findings, forms will include, with advantage, a diagram of the teeth and the chest and abdomen. Those used in the Prudential Longevity Service are designed to be more of an aid to the memory than anything else, and are distinctive in that they reduce the necessary amount of writing by the physician to a minimum in recording the results of an orderly and thorough examination.

Undoubtedly, the activities of the Association in publishing *Hygeia* and approving forms for health examinations are bound to contribute to progress, as well as other means which may later be developed to enlist the services of all practicing physicians in the preclinical field.

CONCLUSION

It may be emphasized that the potentialities and scientific progress of preclinical medicine depend on the realization that health examinations are not mere isolated procedures, and that their chief significance lies in the principle of continuous care of the individual. Preclinical medicine is destined to grow in scope and importance, and the duty of thwarting the formation

of an artificial and unscientific gap between health and disease rests squarely on the practitioners of the country. They alone are in a position to make effective the benefits which must result from that broader and closer contact between public and profession, which is at one and the same time the greatest present need of both and the essence of preclinical medicine.

MEDICAL TREATMENT OF PEPTIC ULCER WITHOUT ALKALIS *

ANDERS FRICK, M.D.
Chief, Department of Internal Medicine, Augustana Hospital
CHICAGO

The large majority of cases of peptic ulcer which are capable of developing granulations and which are free from serious complications, such as profuse and repeated hemorrhages, perforation, perigastritis and periduodenitis with abscess, phlegmonous gastritis, hour-glass stomach, perhaps burrowing and deep penetration as revealed on the roentgenogram, organic pyloric obstruction and duodenal diverticulum, will heal readily under medical treatment no matter whether they are gastric, pyloric or duodenal. This holds true even in cases in which there is a moderate degree of retention of the gastric contents or a digestive or intermittently continuous hypersecretion with or without spastic or inflammatory pyloric obstruction.

In deciding on a medical treatment of peptic ulcer, one should take into consideration not so much the causation of the ulcer as the factors that prevent its healing. No matter what fundamental cause brought on the ulcer, it is a thing of the past and cannot be corrected. The condition confronting us is an ulcer that has little or no tendency to heal. It is therefore of the highest importance to know what prevents healing. The acid gastric juice has been blamed. Even if the theory is correct, which there is no reason to doubt, that the ulcer is caused by the digestive action of the gastric juice on a previously damaged circumscribed area of the gastric or duodenal mucosa, it does not follow necessarily that the same factor prevents the healing of the ulcer. It is not even likely that it is so. It is of common knowledge that an ulcer often heals spontaneously, i. e., while it is still being bathed by gastric juice. Many ulcer patients have found that by taking a vacation and being careful in their diet their symptoms disappear and do not return for years. Many patients have told me that they were sure a trip across the Atlantic would cure them, at least temporarily, their seasickness no doubt having its part in the happy result. If my memory is correct, there are even those who have found that a peptic ulcer may heal even while hydrochloric acid is being given to the patient. Furthermore, the large majority of experimentally produced gastric ulcers have a tendency to heal very rapidly, and the presence of active gastric juice does not prevent it. Finally, it is well known that ulcers occur in stomachs that do not secrete any free hydrochloric acid and, nevertheless, do not heal, a fact that hardly accords with the theory of the acid gastric juice being the single factor that prevents its healing.

Undoubtedly a broader view should be taken of the question and consideration be given both to pathologic conditions and to functional disorders. We know that every peptic ulcer is infected and that, no matter how "clean" its bottom may look to the naked eye, the microscope will always reveal a small-cell infiltration in the surrounding tissues; and we know, furthermore, that a hyperactivity of all the gastric functions is the usual concomitant of peptic ulcer; i. e., hypersensitiveness as manifested by pain, hypermotility and spasm, hyperacidity and hypersecretion. As regards the pain, particularly, it has been fairly conclusively proved that it is not caused by the irritation of the exposed nerve endings in the ulcer by the acid gastric juice but rather by the effect of peristaltic contractions, intragastric tension and pyloric spasm on the infected ulcer and the inflamed surrounding tissues. As regards hyperacidity and hypersecretion, it is commonly acknowledged that the highest acid values are obtained in cases of pyloric obstruction and gastric retention, which observation warrants the inference that hyperacidity and hypersecretion are secondary to the ulcer. The conclusion seems therefore only logical that there must be a reciprocal relation between the ulcerated and inflamed mucosa, on the one hand, and the functional hyperactivity, on the other; or, in other words, that the ulcer is the cause of the hyperactivity and that the latter, in conjunction with the infection, prevents the healing of the ulcer.

If the former theory is correct, an alkaline therapy is undoubtedly indicated; but if infection and functional hyperactivity are the factors which prevent the healing of the ulcer, alkalis are distinctly contraindicated and an antiphlogistic and sedative treatment becomes indicated. The crucial test as to which one of these theories is the true one will be furnished only by practical experience. My personal observations have convinced me that a treatment directed against infection, inflammation and functional hyperactivity is superior to alkaline treatment.

In my opinion, therefore, the chief therapeutic indications should be: to check excessive secretion of gastric juice, to inhibit excessive peristaltic contractions as far as possible, to relieve intragastric tension and pyloric spasm, and to cause inflammation to subside.

FASTING

In order to check the excessive secretion of gastric juice, it is essential that the patient fast. Even if a fasting stomach continues to secrete, it will secrete far less than when food is given. Before the patient begins his fasting, it should be ascertained that the stomach is empty. If there is the least suspicion that retention or continuous hypersecretion is present (vomiting of food later than six hours after meals, vomiting of large amounts of sour water, splashing over the ventricular area, the larger curvature standing below the level of the navel, "Magensteifung," visible peristaltic waves), the stomach tube should be introduced immediately and eventually a lavage be given. In cases of simple retention, one thorough lavage is sufficient. In cases of continuous hypersecretion, the stomach tube should be introduced every morning until there is no return, which usually occurs within a few days or possibly a week.

How long should the patient fast? Experience has taught that it is sufficient for him to refrain from taking any nourishment until he has been free from pain and distress for twenty-four hours and, in cases of hypersecretion, until the latter has ceased. During the fast he is given small amounts of water frequently,

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of case reports. A reprint of the complete article will be mailed by the author on request.

as water is necessary for his subsistence. It is true that water causes gastric secretion and therefore should be contraindicated; but, on the other hand, according to Carlson [1] water inhibits temporarily the hunger contractions and thus helps to bring the stomach to rest. Only in the more severe cases of hypersecretion and dilatation is it necessary to forbid the drinking of water and supply the patient's need through rectal injections of physiologic sodium chlorid solution. Rectal feeding is never needed except in highly emaciated patients, in cases in which the ulcer is bleeding profusely, and possibly for its psychic effect.

DIETETIC TREATMENT

In feeding the patient, the guiding principles should be:

1. To avoid those articles of food which are known, through the experiments of Pawlow and others, particularly to stimulate gastric secretion. Although in all mixed foods there are substances that start gastric secretion, it seems that meat extracts, acids, alcohol and protein are the most effective stimulating agencies. Meat extracts, acids and alcohol can be entirely dispensed with. The protein which does not "ignite" the gastric secretion to any extent, but which starts a more copious secretion of gastric juice after its digestion has been started by the continuously secreted juice, can be cut down to a considerable degree without harm.

2. To reduce the amount of salt to a minimum necessary for subsistence, because every-day experience tells us that an excess of salty food is likely to cause heartburn and acid eructations, which very often are premonitory symptoms of ulcer. It would be tempting to explain this effect of salty food as being due to the presence of excessive amounts of the salt itself. Sodium chlorid is practically the only form under which chlorin, one of the elements necessary for the formatoin of hydrochloric acid in the gastric juice, is introduced into the system. It would therefore only be logical to conclude that the chances for a secretion of a highly acid juice are the greater, the larger the amount of salt taken. But, according to Pawlow and others, the ingestion of sodium chlorid has little or no influence on gastric secretion, and, according to Carlson,[2] in chlorid starvation the gastric glands can apparently produce hydrochloric acid until the secretion itself ceases from general cachexia. These scientific facts are in accord with our clinical experience that the most severe pyrosis often occurs in cases in which the gastric acidity is not abnormally high, but even abnormally low. The reason why salty food causes a sour stomach is therefore probably not that it leads to an increased gastric secretion but more likely that it in some manner causes a disturbance of gastric and pyloric motility.

3. To give freely of fat, particularly in the early part of the treatment, because of its inhibitory influence on the secretion of both the "appetite" or "psychic" and the "digestive" juice. However, a modification of this statement is needed. Not all kinds of fats should be given indiscriminately, but only fresh cream, sweet butter and, in suitable cases, olive oil, because all other kinds of fat, and even the former when they are fried, are known to cause sour stomach, probably through delayed evacuation of the stomach. For some patients, although few, even cream and butter seem to be "too rich."

4. To see that the patient gets protein, fats, carbohydrates, vitamins and necessary minerals in proper proportions. It is not necessary to figure out the number of calories needed; it is more practical to keep a record of the patient's weight. He will naturally lose flesh while fasting and even lose slightly during the first week or ten days while he is being scantily fed; but afterward he should hold his own or, preferably, gain in weight. If he does gain in weight and in strength, it is evident that he gets a sufficient number of calories and is properly nourished.

5. Gradually to increase those articles of food which tend to promote bowel movements, because it is known that constipation increases gastric acidity, probably by causing gastric retention. Therefore, at the proper time, plenty of coarse cereals, coarse bread, vegetables and sweet fruits should be given.

Basing the dietetic treatment of peptic ulcer on the foregoing principles, a plan has been worked out the main points of which are: to begin the feeding after the patient has been free from pain and distress for twenty-four hours and start with cream alone, after a few days add water gruels made of oatmeal or other cereals, and thereafter gradually also warm milk, rusks or zwieback, sweet butter, eggs, cream soups, cooked vegetables, coarser cereals, coarse bread, cooked and not too sweet fruit, and boiled fish.

About six or eight weeks after the beginning of the treatment, the patient should be allowed to take a small portion of lean meat daily, chicken and lamb to begin with, gradually also beef, veal, wild fowl, and venison. At first, the meat should be served in the form of stew; later on, the lean part of roast or broiled meat is allowed, but fried meat should be avoided. He may at the same time begin to take a small cup of weak coffee at breakfast and some raw fruit, provided it is sweet.

After three months altogether, as a rule, the patient is discharged and given the following advice as to his diet: For one-half or one year, or even longer, he should avoid all greasy, acid and very salty food. Greasy food is understood to mean all fried food and all fats except fresh cream, sweet butter and possibly olive oil; by acid food is meant vinegar and acid fruit; by very salty food is meant food that is put up in salt. He should take only moderate quantities of meat, meat soups, white bread, pastry, sweets and coffee. He should be encouraged to eat a great deal of coarse cereals, coarse bread, vegetables and sweet fruit in order to make sure of spontaneous bowel movements. He should be warned against the use of strong liquor and tobacco, as both are known to bring on a sour stomach and heartburn. A mild cigar or a few cigarets after meals may be gradually permitted; smoking on an empty stomach is distinctly harmful; chewing of snuff or tobacco should be definitely discontinued.

The diet, as outlined above, is, of course, subject to modification according to the severity of the case, to the patient's likes and dislikes in regard to food, and to other circumstances not necessary to mention in detail.

MEDICINAL TREATMENT

In order to meet the other indications, the inhibition of excessive peristaltic contractions, the relaxation of pyloric spasm, the relief of intragastric tension, and the subsidence of inflammation, it is important to bring the stomach to rest. This is partially accomplished by fasting and by very gradually increasing the diet. But still better results are obtained by the additional use of

1. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1919, p. 171.
2. Carlson, A. J.: The Secretion of Gastric Juice in Health and Disease, Physiol. Rev. 3:1 (Jan.) 1923.

two drugs, bismuth and opiates. As a rule, bismuth alone is sufficient if a chemically pure subnitrate is used in large enough doses. (The other bismuth salts have not proved so effective in my hands.) One heaping teaspoonful of bismuth subnitrate stirred up in a small amount of water should be given at least four times daily to begin with. It may be difficult scientifically to prove the effectiveness of bismuth subnitrate in the treatment of peptic ulcer, but from a clinical point of view there is abundant evidence of its being an anodyne, an antiseptic and an antiphlogistic. In the large majority of cases, if bismuth subnitrate is given on a truly empty stomach, the pain and distress disappear after the very first or, possibly, the second dose, never to return, provided the treatment is faithfully carried out. That bismuth subnitrate should have such a prompt effect on an ulcerated and inflamed gastric mucosa is only reasonable when it is kept in mind how promptly it acts on an inflamed intestinal mucous membrane. If a few doses of bismuth, as is generally known, will check a diarrhea in a case of acute enteritis, how much more of a soothing effect may we not expect it to have on the stomach?

However, in a small percentage of cases, the first two doses of bismuth subnitrate fail to relieve the pain and distress. This probably occurs when the inflammation around the ulcer is intense or the spasm of the pylorus is severe, and in these instances the opiates become indicated. If, after having taken two doses of bismuth subnitrate two hours apart, the patient is not perfectly comfortable, one dose of ⅛ or ⅙ grain (0.0075 or 0.01 gm.) of morphin sulphate or one dose of from 8 to 12 drops of tincture of opium (measured by dropping directly from the bottle) should be given with one teaspoonful of water. Usually the one dose is sufficient permanently to relieve the pain. Only in rare cases is it necessary to give a second dose, and practically never are more than three doses, given at proper intervals, needed. As a rule, morphin and opium act equally well; but it seems that perhaps the latter relieves more rapidly when the pain is of a griping character, and that morphin is the better drug when there is a more constant ache. However, the object of giving opiates should not be only to relieve pain and distress. The pain indicates spasm and inflammation, and the chief purpose of giving opiates should be to relieve these two conditions just as we give the same drugs in cases of pneumonia and bronchitis in order to bring rest to the affected organ, or give morphin suppositories in acute cystitis in order to bring rest to the infected bladder, which, as is well known, materially hastens the recovery. After the patient has been relieved of pain and distress, the bismuth subnitrate is given regularly throughout the treatment for three months or even longer. The dose may be reduced to a rounded teaspoonful four times daily as soon as the stools become black. By the time the patient takes only three meals a day, three still smaller doses a day may be sufficient as long as they are large enough to keep the stools black and fairly odorless. The bismuth subnitrate should always be given before meals and with only a small amount of water. There is no danger of nitrite intoxication in giving large doses of bismuth subnitrate, provided the bowels are thoroughly evacuated at least every other day. I have seen three cases of nitrite intoxication due to large doses of bismuth subnitrate, all of them in patients who disregarded my advice as to their bowel movements. The symptoms were cyanosis, weakness and low blood pressure. All three patients were well twenty-four hours after thorough catharsis.

In addition to bismuth and eventually opiates, only one class of drugs, as a rule, is needed; namely, cathartics. It has been my custom in the early part of the treatment to prescribe compound powder of glycyrrhiza, from one to three teaspoonfuls, to be taken at bedtime if the bowels have not moved during the day. The advantage of compound powder of glycyrrhiza is that it gives a stool of a mushy consistency which is suitable for the examination for occult blood; and a benzidin test should, in fact, be made twice a week both for diagnostic purposes and in order to ascertain the healing of the ulcer, until the test becomes negative. Later on, when examinations of the stools are no longer needed, salines are more appropriate than compound powder of glycyrrhiza, because they are known to reduce gastric acidity better than other laxatives. Therefore, magnesia magma or the tribasic magnesium phosphate, as recently advocated by Kantor,[3] may be given more or less regularly, or a small tumbler of cathartic water may be given every time there has been no bowel movement for thirty-six hours. Liquid petrolatum is also a suitable cathartic. In numerous instances, however, practically no cathartics need to be given during the bismuth subnitrate treatment; bismuth subnitrate itself, even if given in daily doses of half an ounce (15 gm.) or more, is not constipating unless diarrhea is present.

As regards the alkalis, it is my firm conviction, based on an experience of about 700 cases, that, in the average case of peptic ulcer with the ordinary typical symptoms, alkalis need not be given. As a rule, when the patient, usually after having suffered for months or years, finally decides to seek medical aid, he has long ago found out that sodium bicarbonate gives temporary relief and he has therefore taken it often in large amounts. Nevertheless, the ulcer fails to heal even if he lives on milk and eggs and cereals. Still, this very patient, after having taken a few doses of bismuth subnitrate on an empty stomach and having abstained from food for a few hours, is immediately not only temporarily but definitely and, under certain conditions, permanently relieved. This experience alone seems to be sufficient clinical proof that bismuth is the favorite drug and that alkalis are not indicated in the average case of peptic ulcer. The futility of giving alkalis becomes still more evident when it is kept in mind that the object of an alkalization, namely, the continuous neutralization of the acid stomach contents, is, at least in the experimental animal, impossible of attainment unless such large amounts of alkalis are given as to produce a severe gastritis, and that large quantities of alkalis actually increase gastric secretion.[4] In fact, the actual danger of giving these drugs is clearly illustrated by the investigations recently carried out by Hardt and Rivers[5] at the Mayo Clinic in regard to signs of intoxication occurring in connection with alkali therapy. It is even a question worthy of consideration whether a continuous destruction of all peptic activity by alkalization is not distinctly harmful to the system, as it is well known that a gastric achylia may cause both serious intestinal disorders and a pronounced anemia. It seems, therefore, a better proce-

3. Kantor, J. L.: Antacid Gastric Therapy, with Especial Reference to the Use of Neutral Antacids, J. A. M. A., **81**: 816 (Sept. 8) 1923.
4. Carlson, A. J.: Oral communication to the author.
5. Hardt, L. L., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.

dure in the treatment of peptic ulcer *by proper regulation of the diet to prevent excessive secretion of gastric juice, and by administration of bismuth subnitrate to restore to normal conditions an ulcerated and inflamed gastric mucosa.*

Still, it cannot be denied that, in a very small percentage of cases, alkalis are indicated; namely, in those in which a severe pyrosis is present and does not disappear after the first few doses of bismuth. Small doses of sodium bicarbonate, preferably in conjunction with bismuth subnitrate, should then be given as frequently as necessary to relieve the pyrosis. At times a mild alkaline water will be sufficient. At other times it seems that occasional doses of from 10 or 15 grains (0.6 or 1 gm.) of sodium bromid will give more thorough relief. In cases of persistent pyrosis, a prolonged milk and toast diet may be indicated. As soon as the pyrosis ceases, the alkalis should be discontinued.

Another drug that has a reputation of being helpful in the treatment of peptic ulcer is atropin. From a scientific point of view it may be true that atropin produces relaxation of the gastric and intestinal muscularis and depresses the secretion of gastric juice; but from clinical experience it may be stated definitely that atropin does not produce such relaxation when it is mostly needed; namely, in painful pyloric spasm. In this condition it is as inefficient as in painful spasm of any other organ, as, for instance, the gallbladder and the gallducts, or the neck of the urinary bladder or the anus or the respiratory organs. Whenever spasm is present, and particularly if it is painful, morphin is the supreme remedy, and it is so much more indicated in painful pyloric spasm as only few and very small doses are needed in order permanently to relieve it, always provided the stomach is empty. As to the depressive action of atropin on gastric secretion, it might be of value if it were not for the fact that in order to obtain any marked results so large doses have to be given that the undesirable and disagreeable effects of atropin also are produced, such as delay of gastric evacuation and symptoms of intoxication.

REST

Under the relatively simple treatment as it has been outlined above, the average ulcer patient will recover without discontinuing his work; and for people of moderate means it is, of course, a great advantage to be able to regain their health under an ambulatory treatment. However, it is advisable, even if not strictly necessary, for the patient to remain at home and in bed during the first day or two while he is fasting, which he usually can afford to do. Often it can be arranged so that he fasts on a Sunday. Only under one of four conditions is it necessary for the patient to remain in bed for any length of time: (1) if the bleeding from the ulcer has rendered the patient distinctly anemic; (2) if the ulcer is "acute," with extreme tenderness of the epigastrium probably indicating an extensive perigastritis and possibly also threatening perforation; (3) if continuous hypersecretion and marked gastric dilatation are present, and (4) if the ulcer is complicated by gastroptosis. Under these conditions it is important that the patient remain in bed until the bleeding has been controlled; until the acute inflammation has subsided, which takes only a few days or a week at the most if warm poultices are used on the epigastric region; until hypersecretion has ceased and the dilated stomach has had a chance to contract to its normal size, which it does very rapidly if it is only kept empty, or until the ptotic stomach has at least partially regained its normal position. In cases of manifestly callous ulcers in which an operation is indicated but the patient declines to submit to it, one may try to heal the ulcer by keeping him in bed for a number of weeks on chiefly a milk diet, although with only a doubtful chance of success. Whether a prolonged rest in bed (from six weeks to three months) is strictly necessary in those cases in which a niche can be demonstrated on the roentgenogram, as advocated by Jacobaeus,[6] I am not in a position to decide. But I know that an equally important sign by which the healing of the ulcer also can be watched, so to speak, namely, the presence of occult blood in the stools, does not preclude the success of an ambulatory treatment.

PREVENTIVE TREATMENT

It is universally recognized that the definite and permanent healing of a peptic ulcer is not necessarily accomplished when the patient is relieved of his distressing symptoms. In order to insure a permanent cure and prevent recurrence, it is necessary to take into consideration the etiology of peptic ulcer.

If I am to judge from my clinical experience, there seems to be no doubt that Rosenow's [7] theory is correct in regard to the elective affinity of streptococci of a certain degree of virulence to the gastric and duodenal mucosa, and that a bacterial embolus is the most common cause of peptic ulcer. I am even inclined to believe that Macrae's [8] contention is correct that "ulcer in either stomach or duodenum is always due to infection from other parts of the body." It may originate from chronically infected teeth, tonsils, nasal accessory sinuses, gallbladder or appendix, or it may be a sequence of an acute infection as, for instance, an ordinary cold which, in the parlance of the patient, "settles in the stomach." The well known fact that the recurrences of peptic ulcer usually occur in spring and fall, or at those periods of the year when "colds" and acute infections are most common, speaks strongly in favor of this theory. So also does the very frequent association of peptic ulcer with other manifestations of streptococcus infection, as inflammatory rheumatism, valvular heart lesions, cholecystitis and appendicitis. In all cases of peptic ulcer, foci of infection should therefore be looked for and, if possible, eradicated, and the patient should be cautioned to be careful about his diet, even to live on milk and toast and take bismuth for a while in case he contracts a cold or any other infectious disease.

In regard to other factors reputed as being etiologically important, such as gastritis, chlorosis, trauma, neurosis and endocrine disturbances, little is to be said. Gastritis as an independent disease is comparatively rare; and, even if in isolated instances it should lead to the formation of an ulcer, the measures advocated for the prevention of ulcer are adequate also to prevent gastritis. Chlorosis is more likely to be a consequence of a slightly bleeding, chronic, peptic ulcer than its cause. Epigastric trauma undoubtedly may lead to the formation of peptic ulcer, and should naturally be

6. Jacobaeus, H. C.: Interne Behandlung des Ulcus Ventriculi und Duodeni mit röntgenologischer Nische, Klin. Medd. fr. Kongl. Seraf. Lazarettet. Med. Klinik II, Stockholm **3**: 38, 1923.

7. Rosenow, E. C.: Production of Ulcer of Stomach by Injection of Streptococci, J. A. M. A. **61**: 1947 (Nov. 29) 1913; Focal Infection and Elective Localization of Bacteria in Appendicitis, Ulcer of the Stomach, Cholecystitis, and Pancreatitis, Surg. Gynec. & Obst. **33**: 19 (July) 1921; The Specificity of the Streptococcus of Gastroduodenal Ulcer and Certain Factors Determining Its Localization, J. Infect. Dis. **33**: 248 (Sept.) 1923.

8. Macrae, Donald, Jr.: Chronic Duodenal and Gastric Ulcer Diagnosis, Journal Lancet **43**: 26 (Jan. 15) 1923.

guarded against. As to neurosis and endocrine disturbances, sufficient proof has not been given of their etiologic importance, and in those cases in which they coexist with a peptic ulcer, all of these conditions are probably due to the same infection.

Another etiologic or, rather, pathogenic factor is the "sour stomach." It is of common knowledge that the "sour stomach" bears a distinct relation to peptic ulcer, and a large number of patients complain of periodic heartburn for years before ulcer symptoms appear. Whether the "sour stomach" is due to hypersecretion of a highly acid juice or to presence of fatty acids in a stagnating gastric content, and perhaps is a sign of reverse peristalsis, as Reichman and Alvarez[9] assert, the cause of it is practically always injudicious eating, drinking and smoking, usually in combination with constipation. To prevent the recurrence of peptic ulcer, it is therefore essential that the patient abstain from anything that may cause a "sour stomach," and that he maintain normal bowel movements. It does not seem necessary to enlarge on the subject.

But, in spite of all carefulness, there is no denial that peptic ulcers do recur occasionally. Even then, however, medical treatment should not be abandoned. If, on discharge, the patient is only warned that a recurrence is possible, and if he is assured that the ulcer will readily heal again provided he, on the first appearance of the old symptoms, immediately begins to take bismuth subnitrate, evacuates the bowels, skips a few meals, lives on milk and toast for a few days, and thereafter gradually increases his diet, the success of a second and a third "ulcer cure" will be as pronounced as the first one.

SUMMARY

The present paper is intended to be a plea for:

1. A sedative and antiphlogistic treatment of peptic ulcer in cases in which no surgical complications are present.

2. The systematic and prolonged use of bismuth subnitrate "a hautes doses," as advocated by Trousseau.[10]

3. The restriction of the use of alkalis to only those cases of peptic ulcer in which bismuth fails to relieve pyrosis.

4. The ambulatory management of those cases of peptic ulcer which are not "acute" and of those which are not complicated by marked anemia, gastric dilatation or gastroptosis.

5. The prevention of recurrences of peptic ulcer or, in other words, for the overcoming of the so-called tendency to peptic ulcer, by the eradication of infectious foci, by the exercise of moderation in eating, drinking and smoking, and by the establishment of spontaneous evacuation of the bowels.

6. The immediate use of bismuth subnitrate, for a short fast, and for a gradually increasing diet in case symptoms of peptic ulcer should recur.

3219 North Clark Street.

9 Alvarez, W. C.: The Mechanics of the Digestive Tract, New York, 1922, p. 122.

10. Trousseau, cited by Petrén, Karl: Några ord om diagnosen och terapien vid ulcus ventriculi, Hygiea **75**: 321, 1913.

Allay Fear in Hypertension Cases.—Not the least of the duties of the physician should be concerned with the attempt to allay the fear which many patients with hypertension possess. It has come to pass that nearly every bathhouse attendant or cultist of mediocre education has a blood pressure apparatus, the use of which may be believed to exist not so much because of knowledge enabling the user to judge of the problem, but rather because of a desire to appear interested.—W. J. Stone: *California State J. M.* **21**:501 (Dec.) 1923.

CLINICAL SIGNIFICANCE OF HUNGER PAINS

ANALYSIS OF ONE HUNDRED AND SIXTY-TWO CASES OF GASTRO-INTESTINAL AND GALLBLADDER DISEASES *

WILLIAM H. HIGGINS, M.D.

RICHMOND, VA.

The modern conception of gastric function constitutes a new chapter in physiology. On account of its accessibility, this organ has stimulated more experimental work and has attracted more general interest than probably any other part of the human anatomy. Within the span of a few years, radical changes have taken place. Ideas that were once accepted concerning it are now discarded, and many established facts of yesterday are crumbling in the light of our present knowledge.

HISTORICAL

One of these radical departures from former teachings is the modern interpretation of the hunger mechanism. For many years Haller's theory of the mechanical stimulation of sensory nerves in the gastric mucosa was generally accepted, and was the foundation of much of our therapeutics. Even Pawlow supported this idea and based his assumption on the effect of wine as a hunger excitant.

Following this period, the view that the empty stomach was contracted and not atonic, as previously held, was established by the contributions of Boldyreff, who demonstrated that the fasting stomach of man exhibited two types of contractions. The first type is a tonus rhythm, which disappears when the stomach is full, but is always present when the organ is empty. Superimposed on this tonus contraction there occurs the second type, the periodic, powerful rhythmic contractions alternating with periods of relative quiescence. These individual contractions gradually increase in amplitude, and the intervening pauses become shorter, until the climax is reached in a number of very strong and rapid contractions, approaching incomplete tetanus. This condition persists until food is taken into the stomach, when relaxation again occurs and the cycle repeats itself.

In 1911, Cannon and Washburn,[1] by experiments on man, proved that the periods of contractions in the empty stomach are synchronous with the periods of hunger sensations, and that each separate contraction is synchronous with a hunger pang.

A year later, Carlson demonstrated that the contractions in an empty or nearly empty stomach give rise to the sensation of hunger by stimulation of sensory nerves not in the gastric mucosa but in the submucosa or muscularis. It is interesting to note that on the days when the stomach did not exhibit these periodic contractions, the subject did not feel hungry. Conversely, when the hunger was most acute, the contractions were greatest.

The interpretation of hunger sensation has been verified by numerous observers and is now universally accepted. Undoubtedly there is a marked variation in the amplitude of the contractions as well as a varying

* From the department of medicine, St. Elizabeth's Hospital.
* Read before the fifty-fourth annual meeting of the Medical Society of Virginia, Roanoke, Oct. 16, 1923.

1. Cannon, W. B., and Washburn, A. L.: An Explanation of Hunger, Am. J. Physiol. **31**: 309, 1911.

degree of gastric hyperesthesia. Ordinarily, the normal individual does not experience a definite hunger pang when the stomach becomes empty; but, under varying conditions, this sensation does develop into an actual pain. It is a matter of common experience to every clinician to observe this phenomenon so marked in certain patients that an actual lesion in the stomach or duodenum is suspected. Luckhardt and Hamburger [2] reported a case of a transient neurosis in a man whose chief complaint was an epigastric pain of the most intense degree. He gave a definite history of food relief, but in the course of a few hours the pain returned. Careful studies excluded any organic lesion, and under psychotherapeutic measures he was promptly relieved.

Not infrequently, a history of food relief is obtained from patients suffering from mucous colitis, and reports of visceroptosis producing similar painful contractions are on record.

HUNGER PAINS

Several years ago, Moynihan introduced the term "hunger pain" to designate the sensation frequently described by those suffering from peptic ulcer. Its mode of onset, general characteristics, and its relief by ingestion of food coincide precisely with the normal hunger pangs, except that it is usually, but not always, more intense.

The fact that these contractions are more acutely felt in ulcer cases is probably due to a hyperexcitability of the gastric nerves. If Rosenow's work on the infectious origin of ulcer is correct, this hyperexcitability of the gastric mucosa may be explained by the local inflammatory process. This idea entirely supplants the "acid theory" of the causation of ulcer pain. In fact, recent studies by Hertz and others have shown that the presence of hydrochloric acid in the stomach is not necessary to the production of hunger pains, and probably bears no relation to it. Spencer, Myer, Rehfuss and Hawk [3] have demonstrated that the relief obtained by the administration of alkalis to ulcer patients is not due to neutralization but to a resulting relaxation of the tetanic spasm of the pylorus and antrum.

In the light of these studies, hunger pains need not be considered as necessarily having their origin in the stomach, but may arise reflexly from extragastric foci. The tendency, however, to associate this symptom with peptic ulcer alone is so far reaching that it still occupies a position of unwarranted importance in the diagnosis of gastric or duodenal ulcer.

When the statement is made by a patient that food brings relief, a presumptive diagnosis of ulcer is generally made. Textbook treatises on peptic ulcer almost unanimously place this symptom in the balance against all other clinical evidence. Bassler [4] states that "the characteristic symptom of duodenal ulcer is the relief of pain on taking food." Osler and McCrae [5] write that "the pain may be only gnawing or a burning sensation, which is particularly felt when the stomach is empty and is relieved by food." Moynihan [6] says: "It is, therefore, not necessary to the attaining of an accurate diagnosis that any examination be made; the anamnesis is everything; the physical examination is relatively nothing.

ANALYSIS OF RECORDS

In order to determine the relative frequency of this symptom in the more common abdominal diseases, an analysis of 162 clinical histories has been completed. This record comprises all patients with peptic ulcer, chronic cholecystitis and chronic appendicitis operated on at St. Elizabeth's Hospital over a given period. For obvious reasons, it does not include any patients with this diagnosis in whom the condition was accidentally found during a laparotomy for other pathologic changes.

This series consists of thirty-three cases of chronic cholecystitis, forty-seven of chronic appendicitis, thirty-four of a combined chronic cholecystitis and appendicitis, and forty-six of peptic ulcer. In the clinical questionnaire used at this hospital, the specific inquiry concerning food relief is made and the reply of every patient is recorded. The character of pain complained of varied as widely as that usually found in a corresponding number of patients suffering from uncomplicated duodenal or gastric ulcers. In every instance a minute postoperative note has been made stating in detail the extent of the pathologic changes present as well as a notation on the condition of the other abdominal organs.

In the first group there were thirty-three cases of chronic cholecystitis. Of these, five, or 15.4 per cent., gave a definite history of food relief.

In the second group there were forty-seven cases of chronic appendicitis. Of these, seven, or 17.5 per cent., showed food relief.

In the third group there were thirty-four cases of combined chronic cholecystitis and chronic appendicitis. Three, or 8.6 per cent., gave a history of food relief.

In the fourth group there were forty-six cases of peptic ulcer. Of these, twenty-one, or approximately 50 per cent., gave a history of food relief.

The interesting feature in this summary is the relative frequency of hunger pains in gallbladder, appendical and duodenal infections. Relief of pain by ingestion of food has been generally recognized as a cardinal symptom of duodenal ulcer, and has served as one of the most important differential points in the diagnosis of this condition. It is rather remarkable that slightly less than one half of the ulcer cases in our series gave this history. We may assume from this low percentage that a duodenal lesion alone is not the sole provocative factor, and it becomes more apparent when we find the same symptoms in from 8 to 17 per cent. of our chronic gallbladder and appendical cases.

The age of the patient, duration of the illness, percentage of hydrochloric acid or roentgenologic studies apparently bore no relation to the incidence of this complaint.

The suggestion has been made that the food relief syndrome is primarily a duodenal reflex symptom reproducing the typical hunger contractions in an exaggerated form. Vaughan [7] has recently emphasized this feature, and has reported a series of cases in which cholecystoduodenal adhesions complicating gallbladder infections simulated duodenal lesions, in their clinical manifestations. Stimulated by this apparently logical deduction, I have summarized the operative notes in the foregoing series (Table 1).

2. Luckhardt, A. B., and Hamburger, W. W.: Contributions to the Movements of the Empty Stomach, xxxiv, a Note on the Movements of the Empty Stomach in Certain Pathologic States, J. A. M. A. **66**: 1831 (June 10) 1916.

3. Spencer, Myer, Rehfuss and Hawk: Direct Evidence of Duodenal Regurgitation and Its Influence Upon the Chemistry and Function of the Normal Stomach, Am. J. Physiol. **39**: 459 (Feb.) 1916.

4. Bassler: Diseases of the Digestive System **1**: 600, 1922.

5. Osler and McCrae: The Principles and Practice of Medicine, Ed. 9, 1920, p. 485.

6. Moynihan: Duodenal Ulcer, Ed. 2, 1912, p. 115.

7. Vaughan, W. T.: Duodenal Ulcer and Cholecystitis, Virginia M. Month. **49**: 34 (April) 1922.

The most striking variation in the operative findings was the presence or absence of adhesions. This term is used in this connection to describe adhesions of sufficient degree to involve neighboring structures, such as the duodenum, colon and liver.

TABLE 1.—*Operative Findings*

Chronic cholecystitis (33 Cases)	Food relief 5	Adhesions 5	
		No adhesions 0	
	No food relief 28	Adhesions 17	
		No adhesions 11	
Chronic cholecystitis and chronic appendicitis (34 Cases)	Food relief 3	Adhesions 3	
		No adhesions 0	
	No food relief 31	Adhesions 19	
		No adhesions 12	
Chronic appendicitis (47 Cases)	Food relief 7	Adhesions 5	
		No adhesions 2	
	No food relief 40	Adhesions 13	
		No adhesions 25	
Peptic ulcer (46 Cases)	Food relief 21		
	No food relief 25		
Pyloric hypertrophy	Food relief 1	Duodenal adhesion	
	No food relief 1	No adhesion	

It will be noticed that although all patients with chronic cholecystitis showing food relief had adhesions, more than one half of those not giving this symptom likewise have the same type of adhesions. In the combined cholecystitis and appendicitis, the three patients showing hunger pains had adhesions, while nineteen of the thirty-one cases not presenting this symptom were complicated also by adhesions.

In the series of chronic appendicitis, five of the seven patients giving a history of food relief had adhesions, while thirteen of the forty patients without food relief had similar adhesions.

Two cases of benign pyloric hypertrophy are reported. The one in which relief was obtained by food presented duodenal adhesions, and the other, in which there was no hunger pain, showed no adhesions.

In Table 2 a record is given of the general type of adhesions in those cases in which a history of food relief has been obtained. It will be seen that adhesions involving the duodenum were reported in the majority of the operative findings. In some instances, the adhesions were apparently primarily periduodenal, and involved the gallbladder or appendix secondarily; or the reverse was found in that the duodenum was evidently caught accidently in the meshes of an infection arising in an adjoining organ. In one case of chronic cholecystitis showing food relief, adhesions extended from the under surface of the liver across the duodenum without actually involving the intestine other than producing a kink through pressure. A somewhat similar picture was found in one case of chronic appendicitis in which adhesions extended to the mesocolon compressing the duodenum but not attached to it.

In the uncomplicated ulcers, the cause of the hunger pains may be definitely referable to the duodenal lesion. Rosenow has shown that when certain bacteria by their selective action create an ulcer in the duodenum, a local inflammatory process is instituted. A source of irritation is established which tends to intensify the normal rhythmical contractions, and the typical hunger pains are produced. It is conceivable, therefore, that the reflex arises not so much from the ulcer itself but from the associated inflammatory area surrounding the lesion.

In seeking a satisfactory explanation for hunger pains in extragastric conditions, the problem is even more difficult. Theoretically, the presence of adhesions involving the duodenum may readily account for the epigastric pain through the so-called duodenal reflex, and this assumption is undoubtedly strengthened by definite adhesions in a majority of those gallbladder and appendical infections in which there is a history of hunger pain. Against this argument, however, is the absence of adhesions in some cases showing food relief and their presence in a large number in which the duodenum is definitely involved, without the epigastric distress. In fact, as stated in another paragraph, these hunger pains may occur even without any demonstrable pathologic condition.

Carlson [8] has shown that the same type of pain may arise from any of these lesions under discussion. Kymographic tracings of the stomach contractions were made in gallbladder disease in which epigastric pain was present, and it was found that the pain was synchronous with the rhythmic contractions, even in the absence of any gastric or duodenal lesions. It is his opinion that these gallbladder infections may lead to a hyperexcitability of the sensory nerve fibers of the stomach and duodenum, possibly from the spread of bacterial toxins along the branches of the vagus nerves.

A third possible theory in the production of hunger pains is based on Rosenow's findings in his experimental ulcers by his selective bacterial strains. It will be remembered that cultures made from certain infections will in the majority of instances reproduce the same type of lesion in a similar organ. He found, however, that in the series of ulcer inoculations a multiple infection may result involving not only the duodenum but the gallbladder and appendix as well. Under these conditions it is conceivable that there may be a mild duodenitis associated with neighboring infections sufficient to stimulate the normal hunger contractions.

TABLE 2.—*Type of Adhesions in Cases in Which There Has Been Food Relief*

Chronic cholecystitis (5 Cases)	1. General adhesions
	2. General adhesions
	3. Kinking of pylorus by adhesions
	4. Duod. adhesions to gallbladder
	5. Duod. adhesions to gallbladder
Chronic cholecystitis and chronic appendicitis (3 Cases)	1. General adhesions
	2. General adhesions
	3. General adhesions
Chronic appendicitis (7 Cases)	1. No adhesions
	2. Lane band to ileum
	3. No adhesions
	4. Dilated duodenum
	5. Duod. adhesions to colon
	6. Adhesions under liver
	7. Adh. to colon compressing duod.

CONCLUSIONS

1. Hunger pains may arise from normal rhythmic gastric contractions even in the absence of any demonstrable lesions.

2. Hunger pains are not pathognomonic of peptic ulcer but may also occur in connection with chronic cholecystitis and chronic appendicitis.

3. In an analysis of 162 gallbladder and gastrointestinal infections, hunger pains were present in 50 per cent. of peptic ulcers, 15.4 per cent. of chronic cholecystitis and 17.5 per cent. of chronic appendicitis cases.

4. The most probable cause of hunger pains is a duodenal reflex resulting either from the absorption of bacterial toxins through the branches of the vagi or from a local inflammatory process in the duodenum. The presence of adhesions in the extragastric lesions is undoubtedly a factor, but is not essential to the production of this symptom.

8. Carlson: The Control of Hunger in Health and Disease, 1916.

INCREASE OF URIC ACID IN THE BLOOD DURING PROLONGED STARVATION *

WILLIAM G. LENNOX, M.D.
Fellow in Medicine of the National Research Council
BOSTON

In the course of studies dealing with the chemistry of the blood of epileptic patients during starvation treatment, a marked increase in the concentration of the uric acid in the blood has been found. Observations have been made during twenty-two starvation periods, varying in length from three to twenty-one days, on nineteen subjects. Two of these were normal controls; the others were patients with epilepsy. Except for water, starvation was absolute. Blood examinations were made every day in most cases, and every second or third day in some. The following substances were measured during some or all of the periods: in the blood, the total nonprotein, urea, amino-acid, uric acid and creatinin nitrogen, sugar, chlorid, calcium, phosphorus, cholesterol, and alkali reserve, and in the urine the total nitrogen, uric acid and hydrogen ion concentration. This paper deals only with the findings in regard to uric acid in the blood.

Amount and Percentage Increase in Concentration of Blood Uric Acid During Twenty-Two Periods of Starvation

Subject	Diagnosis	Number of Days of Starvation	Average Prestarvation. Mg. per 100 C.c. Whole Blood	Highest Starvation. Mg. per 100 C.c. Whole Blood	Lowest Poststarvation. Mg. per 100 C.c. Whole Blood	Increase During Starvation. Mg. per 100 C.c. Whole Blood	Per Cent.
S. S. (2)...	Epilepsy	21	3.5	13.5	2.7	10.0	285
S. S. (1)...	Epilepsy	17	4.6	13.3	4.4	8.7	190
N. B.*.....	Epilepsy	16	4.2	9.5	4.7	5.3	126
M. H.	Epilepsy	15	3.4	11.1	1.7	7.7	226
M. C.	Epilepsy	15	3.0	6.8	2.7	3.8	126
E. B.	Epilepsy	14	3.6	10.1	...	6.5	180
S. R.	Epilepsy	14	4.2	10.7	...	6.5	154
F. D.	Epilepsy	14	4.7	16.0	2.0	11.3	240
J. B.	Epilepsy	14	5.0	8.3	2.9	3.3	66
M. M.	Epilepsy	14	3.4	10.7	3.0	7.3	214
F. R.	Epilepsy	14	4.5	10.3	2.9	5.8	128
H. F.	Epilepsy	12	4.3	10.0	2.7	5.7	132
M. C.*.....	Epilepsy	11	4.3	11.4	3.2	7.1	165
E. T.	Epilepsy	10	4.0	9.8	2.0	5.8	145
E. N.	Epilepsy (focal)	8	3.7	10.4	3.7	6.7	181
E. Mc.*....	Epilepsy	8	4.3	8.2	3.3	3.9	90
J. H. B. ...	Epilepsy	4	3.2	7.1	2.5	3.9	121
M. W.	Epilepsy	3	3.3	7.3	1.9	4.0	133
W. L. (1)..	Normal	14	4.1	12.3	2.4	8.2	200
W. L. (2)..	Normal	4	4.1	8.6	4.2	4.5	109
W. L. (3)..	Normal	3	3.5	6.4	3.9	2.9	82
G. A.	Normal	3	4.2	6.1	...	1.9	45

* Starvation on these three patients was conducted by Dr. L. H. Wright at the Monson state hospital.

The amount and percentage increase of the blood uric acid during these starvation periods is summarized in the table. The fourth column of this table gives the prestarvation level of uric acid. This figure is the average of from one to five determinations The fifth column records the highest value obtained during starvation, the sixth column the lowest value in the poststarvation period The last two columns express the increase in concentration during starvation over the prestarvation level. Of the seventeen periods lasting eight days or longer, the average uric acid values (in milligrams per hundred cubic centimeters of whole blood) were as follows: average prestarvation, 4 mg.; highest starvation, 10.7 mg. (an increase of 6.7 mg., or 165 per cent., over the prestarvation figure); lowest poststarvation, 3.1 mg. Blood plasma valves exceeded those for whole blood. This phenomenon is not peculiar to epilepsy. Two normal controls reacted in the same manner as did the patients.

The chart represents the blood uric acid curves for six of the longer periods. These are representative of the whole number. Inspection of these curves shows that the concentration of uric acid begins to rise on the third or fourth day of starvation, and reaches a maximum after about a week. This high but uneven elevation is maintained, or nearly maintained, until the end of the fast. With the taking of food, the concentration falls rapidly. At the end of twenty-four or forty-eight hours, it has reached the prestarvation level. It may sink below this for several days, and then resume its normal concentration. The curve F. D. shows violent fluctuations because of acetylsalicylic acid which the patient took at intervals during the fast.

This finding of an increase of blood uric acid during starvation is, we believe, a new observation. A number of explanations for this phenomenon which are theoretically possible will be named and then briefly discussed.

1. Errors in the method of uric acid analysis.
2. Increased production of uric acid because of:
   (*a*) Increased catabolism of gland cells or other nuclear rich tissues.
   (*b*) Increased synthesis of uric acid from nonpurin body tissues.
3. Decrease in the normal rate of uric acid destruction (uricolysis) in the body.
4. Increased rate of transfer of uric acid from tissues to blood (mobilization).
5. Decreased excretion of uric acid because of urine volumes too small or too acid to dissolve uric acid to the necessary concentration, or because of other factors which temporarily interfere with the uric acid excreting power of the kidney.
6. A combination of two or more of the foregoing factors.

1. The first possible explanation deals with errors in analysis The colorimetric method of blood uric acid determination as devised by Folin and Denis has been modified and improved a number of times It is known that a small portion of the blue color produced may be due to other substances in the blood besides uric acid. It is possible that these substances might be increased during starvation. Folin believes that this source of error is practically eliminated through preliminary precipitation of uric acid by means of silver lactate, his check method. Our routine determinations were all made by Folin's [1] latest modification (1922) of the Folin-Benedict method. In addition, we did occasional parallel determinations, using (1) Folin's check method,[1] (2) the method of Folin and Wu [2] (1919), and (3) the reagent and method of Benedict [3] (1922). All these procedures showed a greatly increased concentration of uric acid in blood during starvation. The direct methods of Folin (1922) and of Benedict (1922) yielded results slightly higher than Folin's check method but considerably higher than the Folin-Wu method of 1919. Such excess, however, occurred in prestarvation as well as in starvation bloods. Using Folin's latest (direct)

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1. Folin, Otto: System of Blood Analysis: Revision of Method for Determining Uric Acid, J. Biol. Chem. **54**: 153 (Oct.) 1922.
2. Folin, Otto; and Wu, H.: A System of Blood Analysis, J. Biol. Chem. **38**: 81 (May) 1919.
3. Benedict, S. R.: Determination of Uric Acid, J. Biol. Chem. **51**: 187 (March) 1922.

method, we found that a group of normal individuals who had not eaten for from twelve to fifteen hours gave values of from 3 to 5.7 mg. of uric acid per hundred cubic centimeters of blood. The prestarvation uric acid figures recorded in the table, though high by previous methods, are within these limits. Our comparative results by these different methods will be presented elsewhere [4] in detail. Starvation increases of blood uric acid were so constant and of such magnitude that they could be accounted for only by very fundamental faults in the accepted methods of uric acid analysis.

2. A starvation increase of uric acid in blood due to increased production does not seem possible because intestinal glandular activity, supposedly an important source of endogenous uric acid, is decreased during starvation. Increased purin metabolism, if it existed, should not in itself cause increased concentration of uric acid in the blood.[5] A larger production of uric acid, either by catabolism or by synthesis, should result in an increased excretion of uric acid. In our subjects, an increased excretion during starvation did not occur.

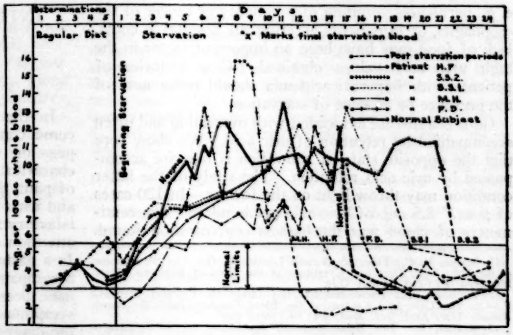
3. Whether the human body has the power of destroying uric acid has been a subject of dispute. Such a possibility, says Rose [6] in a recent review, has not been excluded. Izar [7] has shown that, in the dog, starvation greatly reduces the uricolytic power of the liver. If the same should prove to be true for man, it would explain the fasting increase of blood uric acid on the basis of decreased destruction rather than on the basis of increased production.

4. During starvation, the body must make complicated adjustments among contending chemical forces in the body water of blood, tissues and urine. It is conceivable that in such adjustments the usual relations [8] between uric acid concentrations in blood and body fluids might be altered, the blood gaining uric acid at the expense of body water elsewhere. In the metabolic disturbance known as gout there must be marked variations in concentrations, for urate crystals are deposited in certain tissues, while the blood serum may not be more than a tenth part saturated.[9]

5. Decision as to whether the accumulation of uric acid in the blood is the result of increased production (or decreased destruction) on the one hand, or decreased excretion on the other, requires measurement of the amount of uric acid excreted in the urine. This was done during seventeen of the starvation periods. The data obtained are too voluminous for presentation here, but we may say that there was definite decrease in the amount and the concentration of uric acid in the urine during most of the fasting periods, with a greatly increased output subsequent to breaking the fast by means of purin-free food. Clearly, the kidneys of some of the subjects did not concentrate uric acid to the normal extent during starvation. These kidneys were, however, fully able to concentrate uric acid, as we found by limiting the amount of water ingested.

Our data show that, under certain circumstances, marked changes in the concentration of uric acid in the blood were not accompanied by simultaneous and corresponding changes in uric acid output. There must be other factors (such as uricolysis or increased uric acid mobilization) to account for the facts observed. We have studied the quantitative relationships between the uric acid content of the blood and that of the urine during starvation, with reference to the influence of various types and amounts of foodstuffs, intravenous injection of uric acid, ingestion of certain drugs, such as cinchophen and thyroid, and changes in the acid-base relationship of the blood and in the acidity and volume of the urine. These observations will be presented elsewhere.

This finding of a retention of uric acid led us to search the starvation subjects for evidence of kidney impairment. They were all adolescents or young adults without history of renal disease and with kidneys that



Concentration of the blood uric acid of five patients and one normal subject before, during and after starvation. The abscissa represents days. For the prestarvation and poststarvation periods, the days were not consecutive in all cases. The ordinate represents concentration of uric acid; i. e., milligrams of uric acid per hundred cubic centimeters of whole blood. In each curve a cross marks the last determination made during starvation. The rest of the curve is a dotted line (doubled in the case of the normal subject) and represents the period after the fast was broken. The normal limits (from 3 to 5.5 mg.) are those as determined for the method used by analysis of the blood of a group of normal fasting individuals. The marked fluctuations in the curve of F. D. (the highest on the chart) were due to the ingestion of acetylsalicylic acid at various intervals.

were normal by all the usual tests. During starvation there was no decrease in the ability of the kidneys tested to excrete phenolsulphonephthalein or nitrogen, or to secrete a urine of high specific gravity, and there was an almost entire absence of albumin or casts in the urine. There was no concident increase of nonprotein nitrogen, urea or creatinin in the blood.[10]

High blood uric acid figures have been reported in a number of conditions. These may be divided into two groups, those with and those without evidence of kidney damage. Many witnesses attest the fact that cases of nephritis often show increase of blood uric acid. This increase, however, does not parallel the accompanying increase of total nonprotein or urea

4. Lennox, W. G., and O'Connor, Marie: Measurements of Uric Acid in the Blood by Various Methods, and in Whole Blood and Plasma, to be published.
5. Denis, W.: Effect of Ingested Purins on Uric Acid Content of the Blood, J. Biol. Chem. **23**: 147 (Nov.) 1915.
6. Rose, M. C.: Purine Metabolism, Physiol. Rev. **3**: 544 (Oct.) 1923.
7. Izar, G.: Beitrage zur Kenntnis der Harnsäurezerstörung und Bildung, Ztschr. f. physiol. Chem. **73**: 319 (Aug.) 1911.
8. Denis, W., and Minot, A.: The Nonprotein Constituents of Edema Fluids, Arch. Int. Med. **20**: 870 (Dec.) 1917.
9. Taylor, A. E.: On the Solubility of Uric Acid in Blood Serum, J. Biol. Chem. **1**: 177, 1906.
10. A preliminary report of our findings in regard to blood uric acid during starvation appeared in THE JOURNAL, Sept. 29, 1923, p. 1138. The finding there reported of a very high nonprotein nitrogen on one occasion was an error, due to the use of a chlorin-free filter paper which evidently contained ammonia.

nitrogen. Myers,[11] Baumann,[12] Krauss[13] and others believe that increase of blood uric acid may be the first sign of nephritis. Upham and Higley[14] and Magath[15] have used uric acid excretion as a test of renal function. Some of the other conditions in which hyperuricacidemia have been reported, e. g., cancer,[16] hypertension,[17] thermic fever[18] and methyl poisoning,[19] would seem to be more dependent on the accompanying nephritis than on the disease itself.

The principal conditions in which there may be increase of blood uric acid without accompanying nephritis are gout, leukemia, pneumonia, pernicious anemia,[20] polycythemia,[21] carbon monoxid poisoning,[22] eczema,[23] toxemia of pregnancy,[24] early infancy,[25] diabetes with hypertension,[26] arthritis,[27] and cholecystitis.[28] Some of these reports cover one, or a few cases only. Feinblatt[29] and Hubbard and Finner[30] have reported cases in which there was increase of blood uric acid without increase of blood urea and without laboratory or clinical signs of nephritis. Feinblatt's thirty cases represented nearly as many disease conditions.

It is possible that in some of the diseases reported, e. g., pernicious vomiting of pregnancy or cancer of the esophagus, or in patients entering the hospital in coma, lack of food may have been an important factor in the high uric acid values obtained. Case histories of patients with hyperuricacidemia should make note of the presence or absence of starvation.

Gout is a disease associated with overeating and often accompanied by retention of uric acid. We show here that the opposite state of starvation is likewise accompanied by uric acid retention. The study of the latter condition may throw light on the former. In 120 cases of gout,[31] 8.5 mg. of uric acid per hundred cubic centimeters of blood was the highest concentration found. Making due allowance for difference in methods of analysis used, fasting uniformly results in as high a concentration.

11. Myers, V. C.; Fine, M. S., and Lough, W. G.: The Significance of the Uric Acid, Urea and Creatinine of the Blood in Nephritis, Arch. Int. Med. **17**: 570 (April) 1906.
12. Baumann, L.; Hansmann, G. H.; Davis, A. C., and Stevens, F. A.: The Uric Acid Content of the Blood Compared with the Renal Dietary Test, Arch. Int. Med. **24**: 70 (July) 1919.
13. Krauss, E.: Der Hernsäuregehalt des Blutes bei Erkrankungen der Niere im Vergleisch zum Reststickstoff und Kreatinine, Deutsch. Arch. f. klin. Med. **138**: 340 (Feb.) 1922.
14. Upham, Roy; and Higley, H. A.: A Study of the Renal Concentration Power for Uric Acid in Early Chronic Interstitial Nephritis, Arch. Int. Med. **24**: 557 (Nov.) 1919.
15. Magath, T. B.: A Test for Early Renal Insufficiency, J. Lab. & Clin. Med. **6**: 463 (May) 1921.
16. Killian, J. A., and Kast, L. A.: A Study of Significant Chemical Changes in the Blood Coincident with Malignant Tumors, Arch. Int. Med. **28**: 813 (Dec.) 1921.
17. Williams, J. L.: The Total Nonprotein Nitrogenous Constituents of the Blood in Aterial Hypertension, Arch. Int. Med. **27**: 743 (June) 1921.
18. Gradwohl, R. B. H., and Schisler, E. A.: A Study of Thermic Fever, with Special Reference to the Blood and Urine Chemical Findings, Am. J. M. Sc. **154**: 407 (Sept.) 1913.
19. Rabinovitch, I. M.: Biochemical Studies in a Fatal Case of Methyl Poisoning, Arch. Int. Med. **29**: 821 (June) 1922.
20. Gettler, A. O., and Lindemann, Edward: Blood Chemistry of Pernicious Anemia, Arch. Int. Med. **26**: 453 (Oct.) 1920.
21. Isaacs, R.: Pathologic Physiology of Polycythemia Vera, Arch. Int. Med. **31**: 289 (Feb.) 1923. Erickson, R.: A Case of Vaquez Disease, Canadian M. A. J. **6**: 817 (Sept.) 1917.
22. Czoniczer, G.: Ueber Urikämie bei Kohlenoxydvergiftung, München. med. Wchnschr. **67**: 1121 (Sept.) 1920.
23. Schamberg, J. F., and Brown, Harry: The Relationship of Excess Uric Acid in the Blood to Eczema and Allied Dermatoses, Arch. Int. Med. **32**: 203 (Aug.) 1923.
24. Williams, J. L.: Increased Amount of Uric Acid in the Blood in the Toxemias of Pregnancy, J. A. M. A. **76**: 1297 (May) 1921.
25. Kingsbury, F. B., and Sedgwick, J. B.: The Uric Acid of the Blood of the New-Born, J. Biol. Chem. **31**: 261 (July) 1917.
26. Kylin, E.: Studien über das Hypertonie-Hyperglykämie-Hyperurikämie Syndrom, Zentralbl. f. inn. Med. **44**: 105 (Feb. 19) 1923.
27. Folin, Otto; and Denis, W.: The Diagnostic Value of Uric Acid Determinations in Blood, Arch. Int. Med. **16**: 33 (July) 1915.
28. Breed, L. M., and Kendall, J.: Results with Kidney Function Tests, Ann. Clin. Med. **2**: 105 (Sept.) 1923.
29. Feinblatt, H. M.: Uricacidemia Based on a Study of 1,500 Blood Analyses; Arch. Int. Med. **31**: 758 (May) 1923.
30. Hubbard, R. S., and Finner, J. L.: The Determination of Uric Acid in Blood by the Method of Folin and Wu, J. Lab. & Clin. Med. **8**: 605 (June) 1923.
31. Gettler, A. O., and St. George, A. V.: The Value of Modern Blood Chemistry to the Clinician, J. A. M. A. **71**: 2033 (Dec. 21) 1918.

SUMMARY

Studies of the blood have been made during twenty-two starvation periods on seventeen epileptic patients and two normal subjects. A marked increase in the uric acid of the blood was invariably found. In the seventeen periods lasting eight days or longer, the average increase was from a prestarvation level of 4 mg. to a starvation peak of 10.7 mg. per hundred cubic centimeters of whole blood, an increase of 165 per cent.

In some of the cases, one factor of this increase was found to be a decreased excretion of uric acid. This uric acid retention occurred without coincident retention of nonprotein or urea nitrogen, in persons whose kidneys were normal by the usual tests. This finding throws doubt on the value of increased uric acid in the blood as an indication of renal impairment.

Starvation provides an experimental method for the study of uric acid metabolism.

INTERPRETATION OF ABDOMINAL PAIN *

HENRY F. KRAMER, M.D.
BROOKLYN

In the experience of all physicians, patients have come complaining of abdominal pain without visible pegs on which to hang a diagnosis. An attempt to characterize the pain by questions concerning the kind of pain, time of occurrence, relation to meals, radiation and what relieves the pain is met with vague and unsatisfactory answers. With these questions answered, the attention can often be directed to one particular organ. In a gastro-enterologic clinic, indefinite abdominal pain accompanies almost every case, and a few such cases have been chosen to illustrate how troublesome these symptoms can be, not only to the patient but also to the diagnostician.

Pain in the abdominal cavity does not always indicate the source of trouble by its location. The causes of such pain are many; and the relation between the pain and the diseased organ responsible is not always readily apparent. One is tempted to inquire as to the mechanism by which this pain is produced and how the stimulus is transmitted to the consciousness.

According to investigators (Mackenzie and Lennander), the ordinary pain producing stimuli such as touch, heat and pressure are incapable of producing pain in the abdominal viscera. Crile[1] says: "One would conclude also that there are no touch receptors in the abdominal viscera and therefore no sense of touch in the peritoneum . . . Division of the intestines with a sharp knife causes no pain, but pulling on the mesentery elicits pain. Ligating the stump of the appendix causes sharp, cramplike pains. Sharp division of the gallbladder causes no pain, but distention, which is the gallbladder's most common pathologic state, produces pain. Distention of the intestine causes great pain, but sharp cutting or burning causes none." On one fact all observers are practically in accord, and that is that the parietal peritoneum is very sensitive; and there is also concord in the belief that the viscera themselves are but slightly sensitive to pain. The ade-

* From the Medical Service of the Brooklyn Hospital.
1. Crile, G. W.: Origin and Nature of the Emotions, pp. 44-45.

quate stimulus for pain production is tension either on the mesentery or on the organ capsule or traction made on the abdominal wall. Parenchyma pain does not exist, according to Behan, owing to the fact that no sensory nerves are distributed to the viscera. In the intestinal tract, Meltzer's law of contrary innervation explains colic as follows:

> The normal stimuli reactions in the intestine are those of contraction and relaxation. These two are going on continuously. Contrary innervation permits of this wave of contraction and relaxation, and any interference with this law, such as occurs in colic, obstruction, etc., gives rise to paroxysmal and severe pain. In colic an abnormally strong peristaltic wave occurs in one part of the alimentary canal, the part immediately below which should normally relax, following the law of contrary innervation, but is unable to do so, owing to organic disease or to spasm; the intermediary segment is thus subjected to steady increasing pressure, which soon produces pain, the distention being the adequate stimulus.

How are these sensations carried to the brain? A review of the nerve supply will permit a better understanding of the conduction mechanism. The abdominal viscera receive their innervation from both the cerebrospinal and the sympathetic system. The vagus and the splanchnics carry the cerebrospinal fibers, which are distributed to the various abdominal sympathetic plexuses and finally terminate in the mesentery. The sympathetic system, beginning with the ganglions along the spine and extending through the various plexuses, ends in the abdominal organs and carries vasoconstrictor, vasodilator, motor and inhibitory fibers. Ordinarily it is supposed that the sympathetic fibers do not carry pain sensation. But in the presence of inflammation, according to many observers, they acquire the ability to carry pain-producing stimuli. Pain stimuli, however produced, are carried then by the sympathetic fibers; and by communication with the cerebrospinal system, mainly through the vagus and splanchnics and somewhat through the phrenic, are conveyed to one or more segments of the cord and from thence to the brain. The pain is attributed to the peripheral distribution of the spinal nerves emanating from the segments of the cord involved. This accounts for propagated pain being felt in areas other than those in which they are produced. Propagated pain may be divided into associated, referred, projected, reflex, transferred and sympathetic pains. This is a classification of Behan, and is merely a refinement of the term propagation, depending on the nerve route which the stimulus takes. An example of associated pain is the pain in the top of the head in rectal fissure; of projected pain, that occurring in a part which because of amputation no longer exists; of referred pain, the abdominal pain of pneumonia; of sympathetic pain, the arm pain of angina pectoris.

In appendicitis, referred pain is due to the transmission of the stimulus by way of the superior mesenteric plexus, which receives its supply from the tenth, eleventh and possibly the twelfth dorsal segments, along the splanchnics to the related spinal centers in the cord and the production is attributed to the areas of distribution of the latter. The somatic distribution of these segments is responsible for the cutaneous hyperalgesia and the muscular rigidity existing as objective signs. Cutaneous hyperalgesia, in my experience, is only occasionally noticed over a diseased abdominal organ. Sometimes the skin is tender over a consolidated lung. Well defined zones on the body surface are described by Head, who noticed that, in different diseases of the viscera, areas of cutaneous hyperalgesia were found which coincided rather closely with areas of distribution of herpes of the different regions. Since herpes was due to disease of the posterior root ganglion, he concluded that in the ganglion certain stimuli must be transmitted from the visceral fibers, to those going to the somatic areas and produce an irritation of those fibers so that lighter than ordinary stimuli give rise to pain.

Transferred pain is felt on the opposite side at a higher or lower level, depending on an upward or downward transmission in the cord.

Case 1 is an instance of appendicitis with transferred pain phenomena.

CASE 1.—A. S., a girl, aged 16, admitted to hospital, Jan. 10, 1923, was attacked, about six weeks before, with a severe pain in the left side of the abdomen, beginning under the ribs and radiating across the abdomen and down to the left groin. The pains were cramplike in character, and sometimes seemed almost constant. The pains came on or got worse after eating. The patient's mother described her as walking about bent over and crying out with the pain. There was no vomiting, although nausea was present. Some relief was obtained by belching of gas and by defecation. The bowels were constipated, the stools being ball-like in character, and containing mucus at times. The mother thought there had been blood in the urine, although the patient denied this. The appetite was poor, and there had been a loss of from 15 to 20 pounds (7 to 9 kg.) in weight. Examination showed no tenderness, rigidity or masses in the abdomen. There was costovertebral tenderness. A test meal revealed: free acidity, 8; total acidity, 50; combined acidity, 42; no blood, bile or lactic acid. The stool was negative for occult blood. The urine contained no albumin, sugar or red blood cells, and few leukocytes. Proctoscopic examination showed a congested mucous membrane. There was no other evidence of colitis. The bladder was normal. Catheters passed readily into both ureters. The function and pyelograms of both kidneys were normal. All the urine cultures were sterile. Roentgenograms showed no organic lesion. There was reduplication of the transverse colon; a low transverse colon; a sharp angulation at the splenic flexure; a markedly spastic colon, and a mild degree of colonic stasis (seventy hour) in the region of the hepatic flexure.

In the absence of pathologic changes in the kidney it appeared that the pain was due to colonospasm, a result of colonic stasis. Appendectomy and cecostomy were performed February 3. Exploration of the abdomen showed the stomach and gallbladder normal. The pelvic organs and intestine were apparently normal except the cecum, and the appendix. The cecum was thick and edematous. The appendix was thickened. There was moderate enlargement of glands with infection of surrounding tissues. Microscopic examination revealed chronic appendicitis.

In this case the pain might be explained by the colonospasm induced by the chronic appendix. According to Lockwood, appendicitis and colitis are often closely related, and in those cases in which there was pain over various parts of the colon, there was associated a mucous colitis which was the underlying cause of this most prominent symptom.

The genito-urinary tract in the preceding case was investigated as a routine, not only because of the character and location of the pains, but on the advice of urologists, who state that stricture of the ureter is more common than generally supposed. This condition can cause definite ureteral colic. In Case 2, the patient was sent in as having ureteral calculus, but proved to have only a stricture of the ureter.

CASE 2.—T. E., a man, aged 41, admitted, Sept. 2, 1920, complained of pain in the left testis, the left lower quadrant and the left lumbar region lasting for a few hours. A few hours before admission the patient was taken with sudden pain in the left testis, which was followed by pain in the

left lower quadrant and left kidney region. This pain was excruciating, causing the patient to double up in agony. He applied at my office and was immediately taken to the hospital. He still complained of the original pain, which had been slightly lessened by one-fourth grain (0.016 gm.) morphin sulphate, and the application of a hot water bag, and in addition pain at the end of the penis when trying to pass urine. There was no blood in the urine. The patient had similar attacks one and one-half years before. He was treated for enlarged liver and gallbladder disease three years before. He had had gastric symptoms of belching and epigastric distress at intervals lasting for several weeks. He had had no other illness. The heart and lungs were normal. Under abdominal pressure the liver and spleen were not felt. There was tenderness in the left lower quadrant, but no rigidity. There was tenderness in the left kidney region and tenderness in the left testis.

Examination of the extremities was negative. The knee jerks were normal. Cystoscopy disclosed the bladder mucosa normal. Both the ureteral openings were normal in situation and appearance. A catheter was passed to the kidney pelvis on the right; it passed only 1 inch on the left, when obstruction was met. The urine from the bladder and the right kidney showed few red blood corpuscles, little mucus and few leukocytes. The cultures were sterile. Roentgen-ray examination disclosed that the left kidney seemed a little larger than the right. Both kidneys were low. No renal calculi were seen. A bougie did not pass beyond 1 inch in the left ureter. The condition was diagnosed as stricture of the ureter, which was dilated. February 1, and again, February 10, the patient had severe cramplike pains, in the right upper quadrant, for which he was given a hypodermic injection of morphin. The second attack was not so severe as the first, but was followed the next day by slight jaundice of the sclera.

Intermittent or remittent spasmodic pains in the abdomen, ordinarily known as cramps, have always been associated with the contraction of smooth muscle fibers of some hollow viscus. Colonospasm, in my opinion, is the cause of many unexplained abdominal pains and is due variously to stasis from constipation, bands or kinks, or is induced by hernia and many pathologic conditions in the abdomen. The roentgen ray shows spasm of the cecum with chronic appendicitis, colonospasm in colitis, etc. Case 3 is an example of colonospasm due to hernia.

CASE 3.—S. M., a man, aged 45, admitted, Jan. 10, 1922, had had pain in the abdomen for four months. The pain was severe and cramplike at times, and was worse at the umbilicus but present across the upper and lower abdomen and across the back in the lumbar region. The patient could not stand on his feet or work, owing to the increase of the pain. Lying down relieved the pain somewhat, but not entirely. Sometimes this pain kept him awake. He was free from pain for only a few hours each day. He was a large, well developed Russian. There were no abnormal findings in the chest, head or neck. The abdomen showed a right rectus scar from an old appendix operation. There was no marked tenderness, no rigidity and no masses. A bilateral inguinal hernia was noted. Proctoscopy showed a redness of the mucous membrane as far as the sigmoid. The rectal wall was spastic and there were occasional flakes of mucus on the surface. Catheterization of the ureter showed a normal bladder and both ureters normal; likewise the separation function of each kidney and the pyelograms. Roentgen-ray examination disclosed no organic lesion of the gastro-intestinal tract. The colon was spastic. There was hypertrophic arthritis of the lumbar vertebra.

Herniotomy was performed, January 23, under local anesthesia for bilateral inguinal hernia. The patient was discharged, February 9, having made no further complaint of abdominal pain up to the time of discharge.

The larger arteries, such as the aorta, iliacs and mesenteric, are in close relationship to large sympathetic nerve plexuses in addition to the ordinary sympathetic nerve supply. When these arteries are sclerosed, pain stimuli are often generated either by an attempt at vascular spasm or in some other manner, and give rise to the familiar angina pains. Case 4 is an illustration of abdominal angina.

CASE 4.—J. C., a woman, aged 72, a dressmaker, had had pain in the abdomen for three years. Her mother died at 86, her father, at 65. Three brothers were living and well. There was no familial predisposition to disease and no insanity in the family. The patient had always been in good health up to onset of the present trouble. The patient had had indefinite pain in the abdomen for three years. The pain was gripping and intermittent and apparently localized in the lower abdomen or pelvis. The patient had been very constipated. Urination burned. No mental changes were noted by relatives. The patient was feeble and emaciated. The eyes were sunken. The pupils reacted sluggishly to light. Arcus senilis was marked. There was venous pulsation in the neck. Neither the thyroid nor the glands were enlarged. The lungs were normal. The heart sounds were of poor muscular quality and irregular. There was a loud blowing, systolic murmur at the apex, not transmitted. The liver and spleen were not felt. There were no masses. There was no involuntary rigidity, and no distinct tenderness. The knee jerks were normal. There was no edema. The larger vessels were markedly sclerosed. There was senile vaginitis. A large quantity of impacted feces was removed. The patient died about one month after admission. The necropsy showed that the stomach was lightly atrophic, as were the liver, spleen and both kidneys. The heart was smaller than normal. There was extensive arteriosclerosis, and sclerosis of the mitral valve and part of aortic valve. Sclerosis was especially marked in the descending aorta, common iliac and hypogastric arteries, with organized arterial thrombi. There were small myomas in the uterus.

CONCLUSION

When abdominal pain does not point definitely to the cause of the trouble, and when the usual routine examinations, such as test meals, stool examinations, proctoscopy, roentgen-ray, pelvic and genito-urinary examinations, do not prove positively helpful, the following suggestions may be of assistance:

1. The patient should be required to characterize the pain as to location, kind of pain, time of occurrence, regularity and consistency of its recurrence, the relation to meals, defecation and urination, radiation and what it is relieved by.
2. When the pain is subjectively localized, the patient should be required to indicate with the hand or finger. The patient will usually point with the finger in ulcer, gallbladder and appendix; with the hand across the abdomen, in colon pain. In colitis there is often a general abdominal burning in addition to the colic. In cases in which the area is extensive and indefinite, the focus is generally where the pain first occurred (according to Schmidt).
3. Tender points, superficial or deep, should be searched for.
4. The presence of hyperalgesia should be determined.
5. Tension pain should be elicited by movement of the organs or voluntary movement of the patient. Influence of posture on the pain should be noted.

Examination of the abdomen in the knee chest position, or sitting up with body bent forward, as described by Murphy, will aid in the relaxation of the muscles and permit a more intimate palpation of the organs.

Flexion of the extended leg on the abdomen while pressure is made over McBurney's point will cause the appendix to be squeezed between the psoas muscle and the examining fingers.

The existence of increased tonicity of muscle or exaggerated muscular reflexes over the area affected should be noted.

The colon should be inflated with air to bring out tender points or masses.

To localize the viscus causing reflected pain, Behan suggests that one should:

1. Determine whether, in connection with it, there is an associated area of hyperalgesia.
2. Delimit the area of hyperalgesia as nearly as possible and orient it with a cord segment.
3. Find out what organs are supplied by this segment.
4. Examine the organ or organs for disease.
5. See whether the pain can be produced by manipulation of the organ.

181 Lafayette Avenue.

PYELOVENOUS BACK FLOW

ITS RELATION TO PELVIC REABSORPTION, TO HYDRONEPHROSIS AND TO ACCIDENTS OF PYELOGRAPHY [1]

FRANK HINMAN, M.D.
SAN FRANCISCO
AND
R. K. LEE-BROWN, M.B.
SYDNEY, AUSTRALIA

The arrangement of renal tubules and blood vessels is so unique that many details of structure still remain unknown, and this may in part account for our continued ignorance of details of function. Perhaps the following characteristic of renal structure may be new to many; only rarely and vaguely is it found mentioned in the literature, and never has it been subjected to the experimental study that its significance merits. There occurs, under conditions of moderate intrapelvic pressure, a back flow of pelvic contents into the renal veins. The degree of back pressure producing it is generally less than renal secretory pressure and, the communication once established, a lower pressure than the initial one keeps it going. Curiously, relief of pressure is rarely, if ever, followed by hemorrhage.

"Pelvic reabsorption" is a descriptive term, but too general, in that the route might be mucosal, tubular, lymphatic or what not. Besides, the condition is hardly one of absorption. Nor is it an extravasation in the ordinary sense, since the back flow, which we shall describe, follows a very definite route, confined to the veins, and is unaccompanied with diffuse or local infiltration. The point of actual communication of the pelvis with the venous system is from minor calices at the base of one or more pyramids, and is established only under conditions of back pressure. In preference to "reabsorption," the phenomenon might therefore be designated as pyelovenous back flow. It is in the nature of an ascending drainage of pelvic contents into veins from back pressure, and is distinct from parenchymal extravasation, possible with infections or extreme back pressure, and from absorption, whether tubular, which probably occurs to some extent in hydronephrosis, or mucosal, which is slight if ever present. Pelvic reabsorption is preferable as a general term for all these types: (1) pyelovenous back flow; (2) parenchymal extravasation; (3) ascending tubular reabsorption, and (4) direct mucosal absorption. These distinctions are of some importance, but the first, pyelovenous back flow, has anatomic peculiarities with such obvious bearing on the results following pelvic distention as to make it a unique entity worthy of full recognition and separate designation. The acceptance by the reader of the idea of a more or less direct back flow into veins with no tissue extravasation may be promoted at the outset by recalling to mind the long established structural basis of drainage of the contents of the anterior chamber of the eye. The vitreous humor, secreted by the ciliary body, has an almost direct outflow into the venous system of the sclera under certain conditions of back pressure. This phenomenon in the kidney may be anatomically similar.

1. From the Department of Urology, University of California Medical School, and the Hooper Foundation for Medical Research.

SUMMARY OF EXPERIMENTAL STUDY OF PYELOVENOUS BACK FLOW

In the routine use of the collodion injection method for demonstrating renal circulation, a cast of the renal pelvis was often made, and it early became recognized that considerable care was required to prevent extrapelvic extravasation. Closer inspection of such failures after digestion showed, rather unexpectedly, that the extravasation of the collodion mass had frequently occurred into the renal veins and, on reflection, at pressures no greater than the corresponding renal secretory pressure. Figure 1 shows two views of such a venous injection from the pelvis at its inception. This has slight significance if found, as is possible, to be due

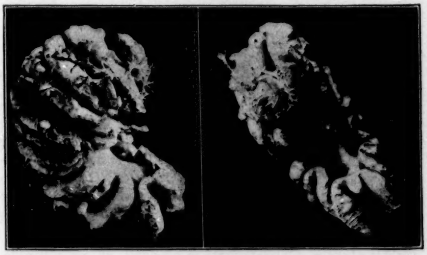


Fig. 1.—Casts of pelvis with overflow into veins: Two views of a collodion cast of the pelvis of a sheep injected at 50 mm. of mercury pressure, showing ascending pyelovenous flow from one or more calices at the upper pole. The free venous anastomosis is apparent even in the very incomplete and early injection. The points of overflow are from the sides or bottom of the sulci of the minor calices. It is technically very difficult to get this sort of injection, as the communication with the pelvis, which consists of very frail venulae rectae, is so fine that the venous overflow of collodion breaks off when the specimen is being washed out after maceration.

to the action of the acetone on the pelvic wall. However, aqueous dye solutions, even water, can be transfused through the kidney from the pelvis and out the renal veins; in fact, being thoroughly familiar with the changes in appearance of the renal surface that accompany the purposeful injection of 2 per cent. solutions of Berlin blue by way of the renal vein for demonstrating the capillary venous system, we were astonished, on subjecting the pelvis (sheep) to between 40 and 60 mm. of mercury pressure with a similar solution, to see duplicated within a few seconds the typical appearance of little points of blue, spreading out and rapidly increasing in number till the entire renal surface was studded, exactly as though the injection had been made by way of the vein, except that presently, the system being fully injected, Berlin blue began to run drop by drop from the open renal vein.

Careful gross study of such kidneys failed to disclose, on systematic sectioning, any area or a single point suspicious of extravasation from a rupture of the pelvic wall, and on microscopic study, the venous injection resembled one produced by the direct route.

Degree of Intrapelvic Pressure.—Fresh kidneys (sheep, rabbit and dog) and manometric control of pressure being used, the lower limits of distention producing this phenomenon are found to be uniform and, within certain limits in point of time, the completeness of venous injection is roughly proportional to the degree of intrarenal pressure. This has its significance. For instance, at an intrapelvic pressure of 20 mm. of mercury, an ascending pyelovenous flow may start at

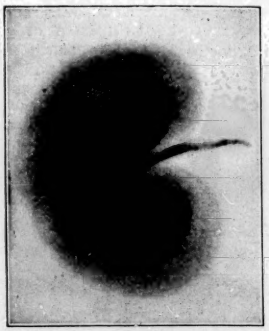


Fig. 2.—Pyelogram of sheep's normal kidney: The ureter, injected at a pressure of 20 mm. of mercury, enters the intrarenal type of pelvis, which is clear cut with no evidence of break anywhere (fresh cadaver specimen).

one or two small points and incomplete injection of the venous system result (Figs. 1, 3 and 4); if this pressure is maintained for a prolonged period, a complete injection gradually occurs. At a pressure of 30 mm. of mercury, the period for complete filling of the veins is much shortened, and at 40 mm. there is a complete injection and venous outflow within a few minutes. Little demonstrable variation is found in the rapid rate of venous filling between 40 mm. of mercury and maximal secretory pressure, but pressures much beyond this point commonly produce parenchymal extravasation. These proportional variations and limitations between pressure and rate of filling may be beautifully demonstrated by taking stereoroentgenograms of kidneys with pelves distended for known periods at known pressures with a bismuth subnitrate suspension. Figures 2, 3, 4 and 5 represent such a series. Figure 2, at 20 mm. of mercury intrapelvic pressure, shows immediately a normal pelvis with no evidence of pyelovenous back flow; but, as just stated, if this low pressure is maintained, a back flow gradually occurs. Figure 3, at 30 mm. of mercury, demonstrates a beginning pyelovenous back flow at the upper pole. Figure 4, at a later period of 30 mm. pressure, shows marked evidence at both poles of a pelvic venous back flow, and Figure 5, at 40 mm. of mercury, a complete venous injection without the slightest evidence of parenchymal extravasation. Another peculiarity significant of a direct route is the fact that the experimenter, when injecting the ureter with a record syringe, the plunger of which has free movement, feels immediately a loss of resistance the moment the pyelovenous break occurs, and is at once conscious of the fact that he can now force the plunger home much faster without altering the level of the intervening manometer or, as is more often the case, must do so in order to keep up the previously existent manometric pressure. Once a back flow is established, less pressure is required to keep it going. The relation to secretory pressure seems to be general only (as shown farther on). The phenomenon is easier of production in the sheep than in the rabbit, although the former has higher secretory and blood pressures. The variable range of production and rate of back flow at pressure between 30 and 60 mm. is fairly uniform, irrespective of differences in secretory pressure. The phenomenon seems due to some fundamental structural weakness, which is universal for the amniotic type of kidney, and is fairly uniform in occurrence in fresh cadaver kidneys of all species studied.

Occurrence in Living Kidney.—Experimental proof is readily obtained that this structural communication between pelvis and veins is of common if not universal occurrence in the living animal under similar conditions of moderately increased intrapelvic pressure. The following three protocols are typical of many, and we have had no failures:

PROTOCOL 1.—*Demonstration of ascending pyelovenous flow in living sheep.* Full grown adult sheep were anesthetized with gas and oxygen. The ureters were exposed by the lumbar route and connected with cannulas. No attempt to get the maximal secretory pressure was made because of the time required, often from three to four hours being necessary for its determination. In this case a pressure of 56 mm. of mercury was registered in thirty minutes. Both kidneys were functioning very slowely. With a manometer intervening and a 20 c.c. record syringe, the left pelvis was subjected to gradually increasing engorgement up to between 35 and 40 mm., when the greater ease of injection became marked. Curiously, however, the manometer level did not drop; but even if injection was interrupted, it would gradually rise to 56 mm. of mercury in spite of the fact that at from 40 to 60 mm. pressure, as much as from 10 to 12 c.c. might be slowly injected by way of the syringe into a pelvis with a capacity of about 5 c.c. within a few minutes without altering

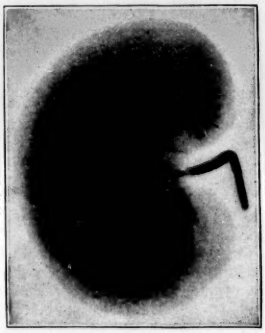


Fig. 3.—Roentgen-ray demonstration of venous injection by way of the ureter: Fresh cadaver kidney of sheep. The ureter, injected with barium sulphate at 30 mm. of mercury pressure, shows clearly at the upper pole a beginning venous injection. There is complete absence of evidence of parenchymal extravasation.

the level of the manometer. A roentgenogram of the kidney was taken during continuous injection of 20 per cent. sodium bromid solution, but the result was unsatisfactory. We now substituted a solution of phenolsulphonephthalein for the sodium bromid and, when slowly injected into the pelvis at 40 mm. pressure, it shortly appeared in the urine from the opposite kidney as well as in the blood. Subsequent examination showed no break or area of extravasation in the sheep's kidney.

PROTOCOL 2.—*Roentgen-ray demonstration of ascending pyelovenous flow in living rabbit.* Rabbits were anesthetized with urethane by stomach tube, cannulas were attached to the ureters, a manometer was introduced, and with the animal on the roentgenographic table, the pelvis was subjected to known pressures of distention with 50 per cent. sodium bromid solution and the kidney was roentgenographed. At 10 and 20 mm. intrapelvic pressure a normal pyelogram was obtained, but at 30 mm. enough sodium bromid was passing into the veins, even though carried off immediately in the

Fig. 4.—Roentgen-ray demonstration of venous injection by way of the ureter: A sheep's kidney under the same condition as that shown in Figure 3, except at a pressure of 40 mm. of mercury. The roentgenogram, in consequence, shows a fuller venous injection, and a back flow by way of the renal veins is apparent even with this incomplete filling of the venous system. That there are many points of pyelovenous back flow is also apparent, but areas at the renal poles seem more predisposed. There is no evidence of parenchymal extravasation.

circulation, to render them perceptible in a roentgenogram, and at 40 mm. the rate of back flow was such as to cast a dense shadow of the large veins (Fig. 6), and even show points of outflow into venules in spite of the speed with which the renal circulation carried the bromid away.

PROTOCOL 3.—*Ascending pyelovenous phenolsulphonephthalein test in dog.* A dog under ether was given an intravenous injection of 400 c.c. of physiologic sodium chlorid solution, and cannulas were inserted in the ureters. The secretory pressure of the left kidney was 63 mm. of mercury. The pelvis and manometer were now emptied and washed out, and a solution of phenolsulphonephthalein was substituted for the secreted urine, but at 50 mm. of mercury pressure. This gradually rose by the further secretion of urine to 60 mm. without requiring further injection of phenolsulphonephthalein solution. Within ten minutes, phenolsulphonephthalein appeared in the urine from the right kidney. After twenty minutes, the manometer was detached, and the pelvis emptied and thoroughly washed to clear it of all phenolsulphonephthalein solution. During the next twenty minutes, samples of urine were collected from both kidneys. The right kidney secreted 8 c.c. containing 2 per cent. phenolsulphonephthalein (the right ureter had been transplanted to the duodenum); the left kidney secreted 14 c.c. containing 5 per cent. phenolsulphonephthalein.

These three experiments demonstrate pyelovenous back flow in the living animal at intrapelvic pressures well below the renal secretory pressure.

The Location of Pyelovenous Back Flow.—At the apex of a minor calix the large venulae rectae are superficially placed (Fig. 7), and, as shown by Figures 1 and 7, it is at the base of pyramids in such an apex that the opening into these veins commonly occurs.

At minimal pressures, small openings are more frequent at one or both poles (of the rabbit and sheep, Figs. 3 and 4), but at secretory pressure innumerable points of communication are probable (Fig. 5). The venous system anastomoses so freely that complete filling is possible from one or more points. Such demonstrations as in Figures 4 and 6, however, prove that ordinarily more than one opening is made. Attempts to localize accurately the individual points of communication have not been entirely successful. Berlin blue specimens give many pictures like Figure 7, in which back flow at the base of the pyramid in the acute sulcus of the calix is evident, and the stereoscopic study of such preparations shows opening into an apparent plexus (Fig. 8), and no definite point or single vessel can be absolutely localized, although the general area is quite definite. Figure 9 presents the clean-cut nature of such a venous injection by way of the pelvis, and shows that parenchymal extravasation is wanting.

SIGNIFICANCE OF PYELOVENOUS BACK FLOW TO HYDRONEPHROSIS

Only brief reference here is possible to the many interesting questions of relationship of this phenomenon to hydronephrosis. Hydronephrotic atrophy is as vague in pathology as renal structure is in anatomy. No adequate explanation of the process has ever been given, and pyelovenous back flow offers a powerful connecting link to a full understanding of many puzzling questions of the mechanism of hydronephrosis.[2] Reabsorption of some kind has been a necessary presumption to an understanding of complete hydronephrosis, as otherwise one would expect a primary atrophy (an anuria) always to follow a complete ureteral block, and one would not expect healthy renal tubules to persist for months as a group distribution with group atrophy of others, nor, with relief of an obstruction of months' duration, group repair to occur. Otherwise the pelvic contents would be a stagnant pool

Fig. 5.—Roentgen-ray demonstration of a completed venous injection by way of the ureter: Normal kidney of sheep. Ureter injected with barium sulphate at 40 mm. of mercury pressure. Complete filling of the venous system is almost instantaneous. There is no evidence of parenchymal extravasation. The renal vein casts as dense a shadow as the ureter. This complete injection of the venous system was done at a pressure at least 20 mm. of mercury below the secretory pressure of this type of kidney.

and not a fresh water lake of less and less concentration, as are the sac contents of progressive hydronephrosis even with complete obstruction. For years

2. An Experimental and Clinical Study of the Mechanism of Hydronephrosis, presented in the Scientific Exhibit, June 25-29, 1923, at the annual session of the American Medical Association in San Francisco, by the Department of Urology, University of California Medical School.

the idea of reabsorption, which permits parts at least of the kidney to continue activity with complete obstruction, has been relegated to the tubules. The greater richness of the venulae rectae is a structural argument for its predominance in Henle's loops, though Cushny gives precedence to the convoluted tubules. An old idea (Heidenhain) is that, with ureteral obstruction, a fluctuating balance is created between filtration plus

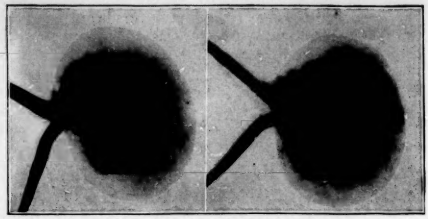


Fig. 6.—Roentgen-ray proof of ascending pyelovenous flow of the living kidney: Rabbit anesthetized with urethane. At right, ureter injected with sodium bromid (50 per cent.) at 30 mm. of mercury pressure; at left, at 40 mm. The back flow into the renal vein is marked in both, but much more in the right illustration. Injected venulae rectae are seen at the upper pole, and the leak into similar veins at the lower pole is registered by the diffuse, cloudlike border, as the shadow-casting solution is diluted and rapidly taken off in the general circulation.

secretion and secretory pressure by reabsorption. Tubular reabsorption, by lowering back pressure, enables further secretion. This sounds reasonable until subjected to experimental proof. A ready reflux of pelvic contents to tubules is required, and such ascending back flow is found impossible of experimental production in the normal kidney. The openings of collecting tubules have been protected by nature against back flow very much, as have also those of the ureters into the bladder, by a diagonal exit, which with intrapelvic pressure acts as a valve to close the tube. The valve once forced, however, a closed tubular system above still renders back flow difficult and imperfect. Figure 10 shows about as complete a tubular injection as we have been able to produce, and, as shown in Figure 7, accompanying this there was a full venous injection. High back pressures of even 400 mm. of mercury, which cause general parenchymal extravasation, failed to cause much deeper penetration of tubules. Tubular reabsorption,

Results of Experiments

Animal	Weight	Duration of Complete Hydronephrosis	Static Pressure of Pelvic Contents	Intrapelvic Pressure of Pyelovenous Back Flow	Appearance Time of Phenolsulphonephthalein in Urine of Opposite Kidney
Rabbit ...	4,500 gm.	30 days	15 mm. Hg	10 mm. Hg	20 minutes
Dog	28 lbs.	70 days	21 mm. Hg	15 mm. Hg	12 minutes

therefore, of necessity is at first intertubular; that is, it is a descending tubular absorption and affects pelvic contents only directly. One might presume that, as tubular dilatation progresses, there is established a freer communication of tubular and pelvic contents; but our studies [2] would indicate, if anything, just the opposite, the collecting tubules becoming collapsed and even more valve-like as hydronephrosis progresses. Now, if a pyelovenous back flow persists during progressive hydronephrotic atrophy, then tubular absorption at once loses a great deal if not all of its theoretical importance as a factor in the pathogenesis of hydronephrosis.

Secretory pressure is roughly an index of the amount of secreting parenchyma, a sort of renal functional test. In a dog with complete obstruction, the ureteral pressure rises to a maximum of from 70 to 90 mm. of mercury in from three to four hours, fluctuates at this point for several hours, and then gradually falls to practically nothing at the period (365 days) of complete hydronephrotic atrophy, when there is complete parenchymal destruction and sac contents of from 400 to 600 c.c. of low specific gravity and weak concentration. Demonstration of an ascending pyelovenous flow is not possible at intrapelvic pressures less than from 20 to 30 mm. of mercury in the normal kidney, and is best shown between 40 mm. of mercury and the secretory pressure. Now, the static pressure [3] of hydronephrosis so diminishes with its progression that after sixty days it is well below this figure, usually from 13 to 15 mm. of mercury (dog). If a pyelovenous back flow has any great significance to hydronephrosis, it will then have to occur at diminishing pressures (below 20 mm. of mercury) as hydronephrosis advances.

Fig. 7.—Point of ascending pyelovenous flow. Low power photomicrograph of a specimen of venous injection with Berlin blue by way of the ureter. An area of penetration into a capillary plexus is seen at the left in the sulcus of a minor calix. The almost negligible degree of tubular injection is also shown on the tip of the pyramid. The perfectly clear medullary zone above, entirely free of injected material, demonstrates that this venous injection could not have occurred by way of the tubules. Microscopic sections of such a kidney whose venous system has been injected through the pelvis with Berlin blue fail to show the slightest evidence of tubular or glomerular staining beyond what is seen in this illustration.

In the accompanying table is presented a preliminary report of such a study. It is seen from this table that in general the resistance to pyelovenous back flow diminishes with the progression of the hydronephrosis, which is somewhat disconcerting in view of the marked pelvic thickening and scarlike infiltration coincident with hydronephrotic atrophy. Nevertheless, its demonstration is fundamental and gives an entirely new aspect and probable solution to many questions.

Relation of Ascending Pyelovenous Rupture to Hematuria.—One would expect relief of pelvic pressure producing back flow into veins to be followed by bleeding, a descending pyelovenous flow; and that

3. Distinction between secretory and static pressure is essential in relation to hydronephrosis. "Static" refers to the pressure in the unruptured sac; "secretory" refers to the pressure possible by the secretory activity of the sac and kidney after it has been emptied.

demonstration of an ascending pyelovenous flow is explanation for many hematurias. But there are difficulties. Physiologic sodium chlorid solution may be transfused by way of the renal artery and out of the vein very easily, but we have found it impossible both with pressures high enough to the point of rupture (300 mm. of mercury) and with lower pressure over prolonged periods (100 mm. of mercury for twelve hours) to inject saline or other solutions through the vein and out of the artery. Such a reversal of the circulation is possible in other organs (glands), but its failure in the kidney is probably due to the fact that venous engorgement closes, by compression, capillary communications.

It is a curious fact, demonstrable experimentally, that the severed renal artery of an anesthetized animal clamped proximally shows no bleeding from its distal end. There is no venous back flow in spite of nearness to the vena cava and the relatively huge intervening renal vein. This fact probably has no relation to the point under discussion, descending pyelovenous bleeding, except to emphasize the difference of an ascending and descending route; for such an unusual capillary resistance or compression, preventing a venous back flow or circulatory reversal, should act in favor of venous rupture into the pelvis in the experimental attempts to get such a reversal. Since the arterial exit is closed, the system must rupture somewhere, and pelvic proximity and ease of ascending pyelovenous flow would naturally lead one to expect just as readily a descending flow. But we have never been able to produce a clear-cut descending pyelovenous flow by venous injection. While solutions find their way quite readily from the pelvis into the veins, they will not pass from the veins to the pelvis. An ascending communication having been previously established by pelvic injection, however, it is then possible to get an imperfect ureteral flow by venous injection. The opening is

Fig. 8.—Point of pyelovenous back flow: High power photomicrograph at the bottom of a sulcus of a minor calix of the kidney (sheep) ureteral injection with Berlin blue; at 30 mm. of mercury pressure showing back flow into plexus of venulae rectae. The injection is not complete. The appearance of irregular rather large spaces is due to the thickness of the specimen, many individual venules all grouped together so as to cast a shadow like that of a venous sinus. Stereoscopic study of such preparations demonstrates, more clearly, back flow into venulae rectae.

easily made from below; it cannot be made from above, but once made is imperfectly accessible from above and freer than before from below, reminding one of valvular action. The probable explanation is that the distention of narrow sulci of minor calices by pressure from below so spreads apart the reticular tissue here as to open into these venous spaces. There is filtration into the rich capillary network at this point following the separation with ascending pressure, but descending venous pressure finds these spaces closed, and rupture at other places in the venous system is easier. When the communication has once been established from

Fig. 9.—Venous injection by way of the ureter: Photomicrograph of Berlin blue preparation of sheep's kidney after ureteral injection at 40 mm. of mercury pressure, which is every bit as clear as is possible by direct venous injection. About equal portions of the cortex and medulla are shown. No tubular injection nor parenchymal extravasation exists.

below, however, there is left an imperfect outlet, and this may be the explanation of some of the hematurias of intermittent hydronephrosis.

COMMENT; RELATION TO THE ACCIDENTS OF PYELOGRAPHY

Our search of the literature has not been complete, and finds very little experimental work. As far back as 1856, however, Gigon[4] performed a few experiments in cadaver and living kidneys (using potassium iodid and starch test) and concluded that fluids pass into the veins by way of a plexus on the surface of the calices. Casual experiments by Poirier[5] in 1891, Tuffier[6] in 1894 (who injected strychnin by means of a syringe into dogs' pelves without result, but with death after ligation of the ureter), Loebell and a few others appear. Adolph Huber,[7] in 1895, studied "résorption rénale" in the living dog under varying conditions of back pressure, but overlooked a venous communication. The bulk of the work concerns pyelography and its accidents, and while considerable, entirely misses, in our opinion, the important factor concerned, namely, ascending pyelovenous back flow. Keyes and Mahan,[8] in 1915, recognized collargol "absorption" as blood vascular, and its appearance in tubules and glomeruli as subsequent and secretory; but the others refer "rupture," "extravasation," "infiltration" or "absorption" elsewhere than primarily to veins. For example, Blum,[9]

4. Gigon, C.: Recherches sur l'ischurie, L'union méd., 1856, p. 297.
5. Poirier, M.: Compt. rend. Soc. de biol., 1891, p. 585.
6. Tuffier, H.: Etude clinique et expérimentale sur l'hydronephrose, Ann. d. mal. d. org. gén.-urin. **12**: 14-40, 1894.
7. Huber, Adolph: Recherches physiologiques sur la résorption rénale, Thesis, Paris, 1895.
8. Keyes and Mahan: Am. J. M. Sc. **149**: 30, 1915.
9. Blum, V.: Wien med. Wchnschr., 1912, No. 19.

in 1912, found that collargol passed through the ruptured collecting tubules. Tennant,[10] in 1913, noted infiltration of the parenchyma; Eisendrath,[11] in 1914, described parenchymal infarcts; Mason,[12] in 1914, who gave a good bibliography, described what we failed to produce: "The injected material, together with any infectious matter in the pelvis, ascends into the straight and convoluted tubules and into the glomerular capsule"; and this finding was apparently confirmed by Burns and Swartz[13] in 1918, who found entrance to the blood stream by way of the glomerulus. Rupture into the tense glomerular tuft after ascension up the long, looped, convoluted and relatively thin walled tubule would seem to us, from a consideration of anatomic facts only, to be an impossible route. Our findings, furthermore, are in direct contradiction to tubular or glomerular rupture, and the degrees of back pressure required to produce general parenchymal extravasation are inconsistent with the ordinary clinical methods of pyelography even with a syringe, so that we are inclined

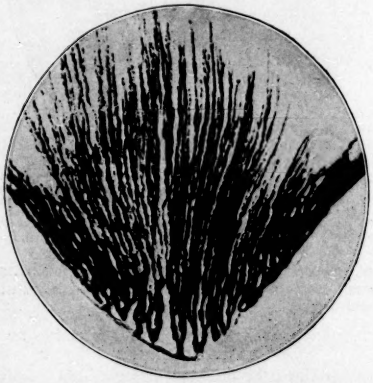


Fig. 10.—Tubular injection by way of the ureter: High power photomicrograph of the tip of the renal pyramid of a sheep's kidney subjected to ureteral back pressure of 40 mm. of mercury for five minutes with Berlin blue. A fuller injection of the tubular system than this, the incompleteness of which is shown in Figure 7, low power, has never been seen even with such huge back pressures as from 300 to 400 mm. of mercury. The terminal portions of collecting tubules are all injected, and the distance of penetration of all tubules is uniform. It is seen that there are relatively few tubular openings in the pyramid, and that for the most part these seem to have a diagonal exit. In the sheep, as there is only a single pyramid, the whole tubular system opens on this limited area, as shown in the illustration, so that each terminal tubule must give off many branches before the cortex is reached. Pelvic distention would tend by compression to close this system tightly.

to believe that all the clinical accidents following pyelography are due primarily to the structural phenomenon of pyelovenous back flow.[14]

CONCLUSIONS

1. Injection of the venous system of the kidney can be made by way of the ureter just as satisfactorily as by way of the renal vein, and unaccompanied by general parenchymal extravasation or tubular distention.

2. The condition is distinct and universal, and should not be confused with parenchymal extravasation, tubular reabsorption or mucosal absorption, and may therefore be designated as pyelovenous back flow.

3. The degree of intrapelvic pressure required to produce ascending pyelovenous flow is always less than maximal secretory pressure, often beginning at surprisingly low figures (20 mm. of mercury); and the rate of venous filling is roughly proportional to the increase above this initial figure, until at maximal secretory pressure it is almost simultaneous. It is essential for its production that very low pressure be used at first and that this initial pressure be very gradually and slowly increased.

4. This pyelovenous communication under conditions of such moderate and gradually increasing back pressure is due to a structural condition at the base of the pyramids, where the rich plexuses of the venulae rectae are in close apposition to the deep sulci of the minor calices. Pelvic distention spreads open these sulci, and the pelvic contents pass into the venous capillary network beneath, as is demonstrated best by the dye injection method. The back flow of the fluid contents of the anterior chamber of the eye into the rich venous plexus of the sclera is analogous anatomically.

5. Experimental proof of the occurrence of ascending pyelovenous flow in the living animal under similar conditions of gradually increasing intrapelvic pressures is given (*a*) by observations, with syringe injection of the ureter, of ability gradually to inject amounts far beyond the pelvic capacity, of consciousness of rupture at a certain point and subsequent greater ease of injection, and of as quick appearance of the injected substances (phenolsulphonephthalein) in the urine of the opposite kidney as after intravenous injection, and (*b*) indisputably, by actual roentgenographic demonstration of sodium bromid pyelovenous back flow.

6. The characteristics of ascending pyelovenous flow bear upon many unsolved problems in hydronephrosis. The gradual fall of secretory pressure with progressive hydronephrotic atrophy does not nullify its importance, for it is found that the pressure required for pyelovenous back flow also progressively diminishes as hydronephrosis advances. Apparently a route once established, with the high pressure in the beginning, is kept open even with gradually diminishing pressures up to the end.

7. The spontaneous establishment with ureteral obstruction of pyelovenous back flow answers the requirements of the popular idea of pelvic or tubular reabsorption in explanation of hydronephrotic atrophy, and opens for controversy the reputed importance of tubular reabsorption as a factor in the mechanism of hydronephrosis.

8. The imperfect descending pyelovenous flow only possible after the route has been opened by a previous ascending flow, in contrast to the case of primary production of the latter, is significant in relation to hematuria. Loss of pelvic distention gives shrinkage and mechanical closure against bleeding; but this route may explain some of the more common hematurias of intermittent hydronephrosis.

9. Ascending pyelovenous flow explains satisfactorily the accidents of pyelography. Injection of the deeper renal tubules is impossible by way of the ureter, and parenchymal extravasation requires intrapelvic pressure probably never produced clinically. The greater ease of ascending pyelovenous flow in hydro-

10. Tennant, C. E.: Ann. Surg. **57**: 888, 1913.
11. Eisendrath: Internat. J. Surg. **27**: 161, 1914.
12. Mason, J. M.: Dangers Attending Injections of the Kidney Pelvis for Pyelography, J. A. M. A. **62**: 839 (March 14) 1914.
13. Burns and Swartz: J. Urol. **2**: 445, 1918.
14. J. A. H. Magoun has published (J. Urol. **10**: 67 [July] 1923) an experimental study of "Absorption from the Urinary Tract," in which no attempt was made to study the "path by which absorption takes place"; but the rapid "absorption" of phenolsulphonephthalein from the tied off pelvis confirmed the result of this paper, which we believe is due to pyelovenous back flow and not to absorption at all.

nephrosis also conforms to the predominance in this condition of the accidents in the use of pyelography. The majority, if not all, of these accidents are due primarily to the structural phenomenon of pyelovenous back flow.

ROENTGENOLOGIC EXAMINATION OF THE GALLBLADDER

PRELIMINARY REPORT OF A NEW METHOD UTILIZING THE INTRAVENOUS INJECTION OF TETRABROMPHENOLPHTHALEIN *

EVARTS A. GRAHAM, M.D.
AND
WARREN H. COLE, M.D.
ST. LOUIS

The revolutionary effect on the diagnosis of gastrointestinal conditions which was made possible by the use of the opaque meal has given rise repeatedly to the idea that if, by some means, an opaque substance could be safely introduced into the gallbladder so that its contour could be seen with the roentgen ray, the diagnosis of many obscure and doubtful cases of cholecystitis might be made easy and accurate. To fulfil the necessary practical requirements, the opaque substance must be something that is excreted into the bile after being injected either subcutaneously or intravenously or after being given by mouth; and, furthermore, it must be devoid of toxic effects when used in the concentrations necessary for the shadow of the gallbladder to be seen. The extensive use of various dyes in the search for a test of liver function has revealed the fact that certain ones are excreted almost entirely into the bile, as, for example, tetrachlorphenolphthalein and rose bengal. Preliminary tests of intravenous injections of the sodium salt of tetrachlorphenolphthalein into experimental animals failed to reveal satisfactory roentgen-ray shadows of the gallbladder. Because of the similarity of chemical structure, it was thought that tetra-iodophenolphthalein would also be excreted into the bile and might cast a satisfactory shadow because of its iodin content. Roentgen-ray shadows of the gallbladder were revealed, but the substance seemed to be too toxic to permit its extensive use in man. Accordingly, it was felt that tetrabromphenolphthalein might be a suitable compromise between the toxic iodin compound and the less opaque chlorin compound. The experimental results with this substance were satisfactory so far as toxicity was concerned but in some instances the shadows of the gallbladder were not so definite as was desired.

Fig. 1.—Gallbladder shadow in a 5.25 kilogram dog, twenty-four hours after intravenous injection of 1.5 gm. of tetrabromphenolphthalein with 0.3 gm. of calcium hydroxid.

It was therefore decided to try the calcium salt instead of the sodium salt of tetrabromphenolphthalein. This substance, when injected intravenously, has given definite and cleanly cut shadows of the gallbladder both in experimental animals and in human subjects. No untoward effects have been observed in the human subject with the concentrations used. This preliminary report is made merely to introduce the method. As yet, our observations have been too few to permit conclusions based on the interpretation of what should constitute the normal shadow and the precise interpretation of deviations from the normal shadow. It is possible, also, that some other substance will prove to have advantages over calcium tetrabromphenolphthalein. Further work is now in progress along this line.

METHOD

A dose of 0.25 gm. of the dye per kilogram of body weight was found sufficient to cast a shadow of the gallbladder, when injected intravenously into a rabbit or dog with 0.05 gm. of calcium hydroxid per kilogram. A shadow could likewise be obtained by combining the dye with twice as much strontium hydroxid as calcium hydroxid.

Fig. 2.—Appearance of a human gallbladder, twenty-four hours after intravenous injection of 5 gm. of tetrabromphenolphthalein with 1 gm. of calcium hydroxid. The patient weighed 130 pounds (59 kg.).

A dose of 0.1 gm. per kilogram, when injected into a human subject, was found sufficient to cast a shadow. At present, 6 gm. has been the largest dose used. Six grams of tetrabromphenolphthalein is mixed with 1.2 gm. of calcium hydroxid, ground in a mortar with a few cubic centimeters of water, and dissolved in from 325 to 350 c.c. of distilled water. Addition of calcium lactate was found to produce a more stable solution and slightly increase its solubility. Therefore, a solution of 2 gm. of calcium lactate in a few cubic centimeters of water is added. The solution has been sterilized by heating it to the boiling point under a flame, and heating in a water bath at from 95 to 100 C. for fifteen minutes. Occasionally, a small amount of the calcium salt precipitates on the bottom of the receptacle. This dissolves readily on the addition of a small amount of water or saline solution, after the clear

* From the Department of Surgery, Washington University Medical School and Barnes Hospital.

solution is decanted off. The solution is filtered and given intravenously by the gravity method, similar to an arsphenamin injection. The solution is introduced slowly. Usually from twenty-five to thirty minutes is consumed in the injection, so that symptoms, if present, can be detected early. Roentgenograms of the gallbladder region are taken at intervals of several hours, beginning three hours after the injection. The patient

Fig. 3.—Appearance of same gallbladder as in Figure 2, thirty hours after injection: The shadow has become less distinct as the substance has begun to leave the gallbladder.

is instructed to lie on his right side when lying down, but is encouraged to walk around or sit up one or two hours after the injection.

TOXICITY

Increasing the dose above 0.25 gm. per kilogram of body weight was found toxic to an animal. Occasionally a hematuria resulted before death. A dose of 0.35 gm. per kilogram is usually fatal instantaneously.

As yet, only a few patients have been injected. All of these weighed 130 pounds (59 kg.) or more and received a dose of from 5 to 6 gm., which is approximately 0.1 gm. per kilogram. Only one suffered any symptoms. When she had received 4.75 gm., or 0.079 gm. per kilogram, she complained of vertigo and slight nausea. Each of these symptoms disappeared in an hour. Slight variation in pulse and blood pressure are recorded, but no more than what might be explained by emotion and an increase in body fluid. None suffered hematuria or albuminuria.

RESULTS

As stated, definite and distinct shadows of the gallbladder are obtained on exposure to the roentgen ray. Up to date, shadows have been obtained on all patients who presumably had a normal gallbladder. It is more difficult to obtain a shadow of a pathologic gallbladder. We believe, however, that this fact will be almost as much aid in diagnosis as a good shadow, since we feel that virtually all normal gallbladders can be made to cast a shadow if proper methods are used. Effort is being made by us to devise methods that will withhold the dye in the biliary system for a longer time, and in a greater concentration.

TECHNIC OF IRIDECTOMY DONE UNDER A CONJUNCTIVAL FLAP FOR GLAUCOMA, USING A BROAD KERATOME *

ROBERT G. REESE, M.D.
NEW YORK

During the period of ten years preceding Jan. 1, 1923, there have been performed 538 operations for glaucoma in my service at the New York Eye and Ear Infirmary.

As it is impossible to follow up clinic patients successfully, it has been deemed wise to confine this report to 237 operations that I have performed on private patients, whose subsequent histories have been accurately followed for periods varying from four months to fifteen years. These patients have been repeatedly observed, and their fields, blind spots, tension and vision taken at practically every examination. Peters' and Lloyd's binocular campimeters and the tangent plane were used for recording Mariotte's blind spots, Rönne's step, and Seidl's and Bjerrum's scotomas. The tension was determined by digital palpation, and by Schiötz, Gradle-Hardy and McLean tonometers.

One hundred of these cases were tested by Dr. Drake and myself, by digital palpation, and two models of each of the above-mentioned tonometers. It was found that the Schiötz tonometer was more accurate and easier to manipulate. The ages of the patients varied from 5 (not buphthalmos) to 87 years. There were sixty-five congestive and 172 noncongestive glaucomatous eyes operated on, and there was not a single instance of infection at the time of operation, or postoperative infection; moreover, I have never had an infection after an iridectomy done under a conjunctival flap (and I must have performed more than a thousand), as I do all iridectomies (preliminary, optical, etc.) by the method here described.

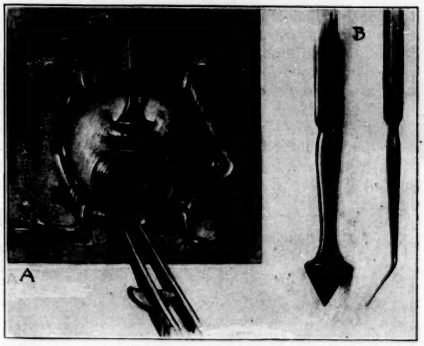


Fig. 1.—*A*, conjunctiva pushed forward to scleral opening, and entrance of keratome in anterior chamber anterior to plane of iris; *B*, broad keratome with rounded angles at base, and plane of cutting surface angulated at 21 degrees; blade is shorter and point less acute than usually used.

PREPARATION OF THE PATIENT

Every glaucoma patient is admitted to the hospital twenty-four hours before operation. A calomel and soda purge is given, followed by a saline in eight hours. A smear of the conjunctiva is taken as a routine measure

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

for microscopic examination, but it makes no difference what micro-organism is found, if the lids are macroscopically normal. On the other hand, if the conjunctiva seems macerated and the mouths of the meibomian glands are occluded, or if there are concretions in the glands, and the case is one that does not need an immediate operation, the glands and lacrimal sac are expressed, the eye is irrigated with boric acid solution

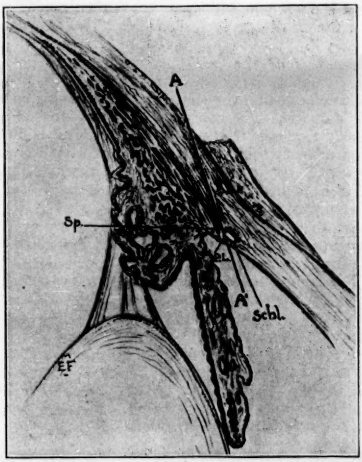


Fig. 2.—Meridional section through anterior portion of eye (modified from Fuchs): *A A'*, incision through sclera, cutting insertion of pectinate ligament (*P. L.*) from scleral spur (*Sp.*) and opening Schlemm's canal (*Schl.*)

three times a day, and 0.25 per cent. zinc sulphate in boric acid solution is instilled every three hours for a few days.

If the case is one of congestive glaucoma, a hypodermic injection of morphin, ⅙ grain, without atropin, is given and a solution of 1 per cent. physostigmin (eserin) salicylate, 2 per cent. pilocarpin hydrochlorid, and 5 per cent. ethylmorphin hydrochlorid (dionin) in a 4 per cent. sterilized solution of boric acid, is instilled every hour for three times, and then a solution of pilocarpin hydrochlorid 2 per cent., every two hours until the time of the operation. Hot fomentations are made every two hours and 20 minims (1.25 c.c.) of fluidextract of pilocarpus in two cups of hot coffee, drunk slowly, is given, and the patient is wrapped in flannels to produce profuse diaphoresis. Two per cent. pilocarpin solution is instilled in the unoperated eye every three hours before and after the operation. These measures are not essential in noncongestive glaucoma cases, in which 2 per cent. pilocarpin, only, is instilled every three hours. One-half hour before the operation, ¼ grain of morphin, without atropin, is administered hypodermically, and, when the patient is placed on the operating table, the brow, lids and adjacent skin are washed with castile soap and water, and then flushed with 1:2,000 mercuric chlorid solution. The lids are everted, and the tarsal conjunctiva, cilia, lid margins, and culdesac are mechanically cleansed with swabs of cotton under a stream of 4 per cent. solution of boric acid.

Fifteen minutes before the operation, a subconjunctival injection is given, composed of 1 per cent. cocain, 8 minims (0.5 c.c.), and epinephrin chlorid, 1:1,000, 2 minims (0.12 c.c.), in the lower culdesac, just under the conjunctiva, and not under Tenon's capsule. A solution of phenacain, 2 per cent., and cocain hydrochlorid, 5 per cent., is instilled every few minutes for six times, commencing before the subconjunctival injection. Ten and five minutes before the operation, a few drops of 1:1,000 epinephrin chlorid are instilled.

The eye is irrigated, before and after the insertion of the speculum, with a warm saturated solution of boric acid, a hand, rubber-bulb, glass-pointed, sterilized syringe being used. Under no conditions is a caustic antiseptic, such as silver nitrate or mercuric chlorid, used, nor are the meibomian glands or lacrimal sac expressed. The latter should have been expressed beforehand. The use of subconjunctival injections of cocain and epinephrin, and the instillation of phenacain, cocain and epinephrin produce good anesthesia, and the hypodermic administration of morphin beforehand quiets the patient and makes him tractable. Postoperative vomiting is conspicuous by its absence, and would be of no moment if it occurred. General anesthesia is seldom necessary.

TECHNIC OF THE OPERATION

The patient looks up, and the conjunctiva and insertion of the inferior rectus, which is 6 mm. from the limbus, are firmly gripped with catch forceps. The patient is then instructed to look down, and the eye is so held. A special broad keratome, bent at an angle of 21 degrees, is used, and its point engages the

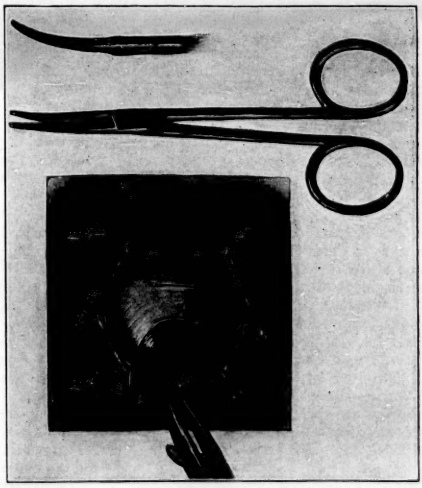


Fig. 3.—Curved blunt pointed conjunctival scissors: line of conjunctival incision 7 mm. from limbus above, and scleral incision 2 mm. above limbus.

conjunctiva 7 mm. from the limbus above (Fig. 1), and is pushed forward to within 2 mm. of the corneal margin, where the sclera is penetrated obliquely, and the point of the instrument enters the chamber, anterior to the plane of the iris (Fig. 1).

The first thrust must not be made at right angles to the sclera so as to bend the point of the instrument, nor must a gimlet-like motion be used; but a straight and continuous push enables this triangular-bladed instrument to perform its work in a sawlike manner, as it is intended to do. The keratome is pushed slowly and continuously, the handle being turned slightly to the right, cutting mostly with the right-hand side of the triangular blade, into the anterior chamber for the entire length of the blade, making an incision in the sclera that follows the curve of the limbus, and is the same distance (2 mm.) from it throughout (Fig. 1*B*), and 8 mm. in length, thereby cutting the insertion of the pectinate ligament from the scleral spur and opening Schlemm's canal for the entire length of the incision (Fig. 2). As soon as this is accomplished, the keratome is quickly and smoothly withdrawn along exactly the same plane as that on which it entered. If this maneuver is rightly carried out, not a drop of aqueous will be lost. At the extremities of the conjunctival opening, which has now receded to its original position, 7 mm. from the limbus, a cut is made, curving upward and backward, with curved, blunt-pointed scissors (Fig. 3), to allow the conjunctival flap to be displaced more easily and still not to interfere with the circumcorneal filtering space.

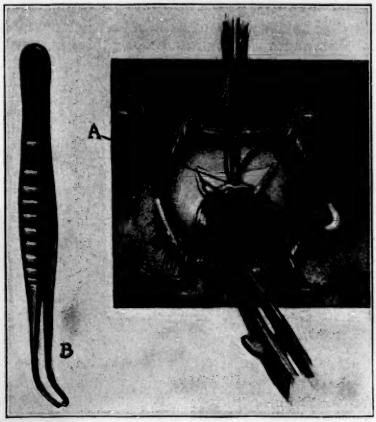


Fig. 4.—Entrance of forceps into anterior chamber, and manner of grasping the iris: *A*, protruding anterior lip of scleral incision, which is either excised or punched out; *B*, proper curve of iris forceps.

With the patient still looking downward, and the fixation forceps transferred to the assistant, the iris forceps are introduced into the chamber, which up to this moment is still full of aqueous; the points are allowed to open, and a firm grip (about 1 mm.) is taken of the sphincter muscle as close to the pupillary margin as possible, but not including it. The seized portion is drawn out through the scleral and conjunctival opening, so that the iris is everted, exposing its uveal layer (Fig. 4).

The excision of the iris is done as follows: While the everted iris is gently drawn backward, and slightly to the left, with curved scissors (Fig. 5), the concavity of the blades facing the right, a cut is made in the iris slightly to the right of the point of the forceps, downward and backward to the ciliary body. The iris is then drawn backward and to the left, and if the ciliary attachment has not been torn loose, a second cut is made, with the concavity of the scissors upward, and the blades are pressed firmly against the posterior portion of the split sclera, along the length of the incision (Fig. 6). The iris is then drawn forward and slightly to the right and, with the scissors pressed against the sclera and the conjunctival flap displaced down over the cornea with a pledget of cotton, the third cut is made, making a coloboma as in Figure 7.

The pillars of the coloboma are replaced and the anterior chamber irrigated, if necessary, with a warm salt solution one-half the strength of physiologic sodium chlorid solution. The conjunctival flap is stroked back in place, the eye irrigated with a warm saturated solution of boric acid, sterilized boric acid (petrolatum, 5 per cent.) applied freely to the lid margins, and a dressing of gauze and absorbent cotton held in place with isinglass plaster strips. This is applied to the operated eye only. A Ring mask, with an aperture cut out in front of the unoperated eye, is applied, and no bandage is ever used.

If the case is one of noncongestive glaucoma, in order to make sure of a spongy, permeable cicatrix or fistulous opening, the piece of sclera which comprises the anterior lip of the scleral opening should be made accessible by depressing the conjunctival flap (Fig. 4*A*). The protruding anterior lip of the split sclera should be cut off with scissors, or pieces punched out of it with Stephenson's or Holth's punch forceps, making the edge serrated. Care is taken not to wound the conjunctival flap where it is adherent to this protruding lip of sclera, nor should the conjunctiva be dissected from it in order to get a better and larger surface; if this precaution is not taken, two raw surfaces will then be in apposition and will heal by primary union,

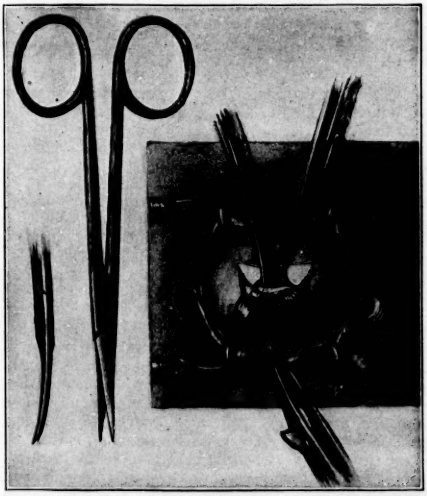


Fig. 5.—Curved, sharp pointed iris scissors, and first step in excising iris.

secluding the scleral incision, and thus thwarting our purpose. It has never been found essential to punch or roughen the anterior lip of the scleral opening in congestive cases, and many of the chronic cases have been cured without it; but in order to leave no stone unturned, we have been following this routine in every noncongestive case for the last five years.

On occasion, it is necessary to irrigate the anterior chamber and free it from blood, and, for this purpose, a solution one-half the strength of physiologic sodium chlorid solution is used, as it has been noted that irrigation of the chamber with physiologic sodium chlorid solution produces, in many instances, a wrinkling of Descemet's membrane, and some irritation. I first suggested this solution thirty years ago, when I was house officer at the New York Eye and Ear Infirmary, and it is still in use.

AFTER-TREATMENT

The unoperated eye is cleansed daily, and 2 per cent. pilocarpin instilled for at least ten days. The patient is allowed to sit up the next morning after the operation, and the operated eye is inspected in twenty-four hours, when a 0.5 per cent. sterilized atropin solution is

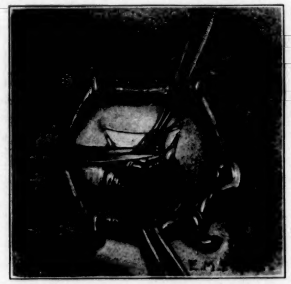


Fig. 6.—Second step in excising iris.

instilled, and used, according as circumstances require, thenceforth. The anterior chamber is restored by this time.

Gentle massage is done at the first dressing, and kept up daily for at least two weeks. The patient is discharged from the hospital in one week, the eye having been dressed daily with the same kind of dressing as heretofore applied. A 1 per cent. pilocarpin solution is instilled in the operated eye every night indefinitely, as a precautionary measure. Pilocarpin is instilled at night because it stimulates the action of the ciliary muscle, and aids the pump action[1] during the hours when the muscle is inactive through sleep.

After massaging the eye, I have repeatedly had the entire circumcorneal conjunctiva blebbed up by the escaping aqueous, infiltrating edema (Figs. 8 and 9), and I have known it to continue to do so after each daily massage for several weeks. In severing the pectinate ligament from the scleral spur (Fig. 2) for the entire length of the incision, a permanent opening is facilitated by the normal elasticity of the fibers of the ligament contracting in one direction, and the ciliary muscle pulling the scleral spur backward in the other direction. This would certainly have a tendency to keep this opening patulous, especially as it is assisted by the flow of the aqueous caused by the daily massage, which separates these surfaces.

The production of a permeable scleral cicatrix is enhanced also by the opening being protected with normal conjunctival tissue and not denuded tissue, as is the case in other conjunctival-flap operations. After

Fig. 7.—Third step in excising iris.

the aqueous has filtered through the spongy cicatrix, or escaped through the fistulous opening, as the case may be, to diffuse under the conjunctiva, the only limit of this diffusion being the conjunctival opening 7 mm. above (Fig. 8), which point alone could become adherent to the sclera. In other flap operations, two raw surfaces are in apposition, and they necessarily heal and limit the diffusion to a very small area, so that the aqueous that escapes through the vicarious opening can make its exit only through the small conjunctival covering of the cystoid cicatrix.

All normal eyes pit on pressure in the conjunctiva adjacent to the limbus, whereas glaucomatous eyes show very slight depressions when a pledget of cotton on a toothpick is used to indent this area. Does this pitting on pressure show that the aqueous has filtered or diffused to this area, and that the aqueous stored

Fig. 8.—An eye the fifth day after operation, just after massage, in which the conjunctiva is blebbed up by aqueous and limited only by adherent conjunctiva at original point of incision.

up in this circular reservoir (Schlemm's canal), which is kept filled by the pump action of the iris and ciliary muscles (Thomson), filters or diffuses through the cornea, adjacent to the canal, and shows itself under the

1. Thomson, Arthur: Ophthalmoscope 9: 470, 1911.

conjunctiva as infiltrating edema, and that it does not have its exit by means of the thin-walled veins connected with Schlemm's canal, as is thought to be the case?

Every eye that has been operated on, whether there is visible filtration or not, shows decidedly more pitting

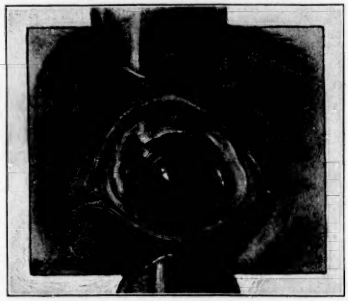


Fig. 9.—Case the third day after operation, after massage, in which the conjunctiva is blebbed up by the aqueous over the entire area adjacent to the limbus, and only a slight indentation where the primary incision in the conjunctiva was made.

on pressure in the conjunctiva over and adjacent to the scleral opening than in any other portion of the limbus conjunctiva. Evidently this indicates that there is more fluid under the conjunctival flap than is normally present. As a postulate, if the anterior scleral lip of the incision has been excised or punched out, filtration or fistulization is macroscopically evident.

In examining eyes that have been operated on, with the Zeiss corneal microscope and the slit lamp, one distinguishes a dark, curved line, with indentations, 2 mm. from the limbus in the sclera, marking the point of entrance of the keratoma, and the conjunctiva over this area appears edematous. This might indicate imperfect cicatrization allowing filtration.

When the anterior lip of the scleral opening is everted, the dark ciliary body can be seen through a

Fig. 10.—An eye in which an iridectomy has been performed downward and inward for removal of a foreign body in the lens; *C, C'*, pillars of coloboma; *B*, rim of slightly shrunken lens; *A*, ciliary processes (there are six), which appear perfectly normal.

thin piece of the posterior segment of this split tunic, and in instances in which that portion of the iris just anterior to the ciliary attachment is adherent or agglutinated to the posterior surface of the cornea at the filtrating angle, as is the rule in cases of long standing, we pierce the iris twice with the keratome point. It has been observed on many occasions that when the iris is withdrawn from the chamber and everted, an opening is present in the ciliary margin of the iris, which shows that the ciliary attachment of the iris has been cut or dragged loose by the keratome. By excising the ciliary attachment of the iris, we bleed the engorged ciliary processes in the congestive cases, an operation that allows the aqueous to drain through the vicarious sluice-way made in the pectinate ligament.

It was clearly demonstrated by Professor Fuchs, in his lectures on pathology of the eye, delivered in New York last year, that, in many cases of glaucoma in which iridectomy was performed, the ciliary attachment of the iris was not completely excised, and there remained a fringe of iris large enough to block the meshes of the pectinate ligament, or to become adherent to the ciliary processes, thus causing congestion and swelling of the ciliary processes with consequent occlusion of the filtering angle.

When the patient's gaze is directed upward, and one looks at the fundus through a + 12 diopter glass in the electrical ophthalmoscope, one sees the ciliary processes at the base of the coloboma, and with the iridectomy done as here described, as many as twenty of these

Fig. 11.—Case of chronic glaucoma in an elderly patient who had a deeply cupped and white nerve head: The fields were contracted almost to the point of fixation; at base of coloboma *A A'*, ten attenuated ciliary processes with wide separation of their intervening spaces.

processes have been seen, with their clubbed extremities and regular intervening spaces (Fig. 10). One can judge the degree of nerve impairment by the atrophic condition of these processes and the irregular separation of their spaces (Fig. 11). Naturally, these processes could not be seen if the ciliary portion of the iris had not been removed, as is easily demonstrated in cases of aniridia, and in cases in which the root of the iris is not excised, as is the case in many iridectomies seen. In both instances, there is a small curtain of iris at the ciliary body, situated anteriorly to these processes, which shuts them off from view. It has often occurred to me that possibly the falling forward of this ciliary rim of iris might block the angle of the anterior chamber by agglutination to the pectinate ligament, and be the etiologic factor in producing hypertonia, which is often observed in aniridia, and in the same way prevent the success of an ordinary iridectomy.

We have been successful in relieving the tension and restoring all the vision that had not been destroyed by pressure-atrophy in every case of congestive glaucoma in which we operated. In the noncongestive cases, the vision was kept in status quo, and the tension kept below 30 (Schiötz) in all but five of those which could

be followed for any length of time; in these the tension remained about 37 (Schiötz). A second operation was refused in four of these cases, and the ultimate result could not be ascertained. The fifth had three iridectomies and one trephine operation, without reducing the tension. In twenty-five noncongestive cases, two iridectomies were performed, and in eleven, three iridectomies had to be performed before tension was relieved.

There was not a single case of expulsive hemorrhage, which was accounted for by the fact that the aqueous was expelled drop by drop, by depressing the lips of the scleral wound with a spatula, so that the tension was reduced gradually. In no case was the lens injured with the keratome or was there vitreous lost, or the lens dislocated; nor did the head of the ciliary body prolapse or become adherent to the incision. Never was an anterior chamber found to be so shallow that it could not be entered with this model of keratome. In my opinion, a preliminary posterior sclerotomy is harmful, and never necessary.

It seems to me that this operative procedure produces a filtering cicatrix or fistulous opening that enables the aqueous filtrate in the first instance, and the aqueous transudate in the second instance, to diffuse under an unlimited area of normal conjunctiva, which is aided by a permanent opening in the pectinate ligament, so that communication is established through Schlemm's canal and the filtering cicatrix or fistulous opening. We had hoped to secure an eye for microscopic examination, in order to determine positively if the ciliary attachment of the iris is excised, and the vicarious opening in the pectinate ligament patulous, etc.; unfortunately, so far, we have been unsuccessful. Six operations were done on rabbit's eyes with this idea in view, but the microscopic examinations were so unsatisfactory that nothing worth while was noted.

I would advise operative intervention in every case of glaucoma, and the only excuse for not operating would be that we were able to determine that useful vision would outlast the patient's life. The surgeon's watchword should be "the sooner the better," as von Graefe taught, and his pupil, de Wecker, endorsed. I am fully in accord with de Wecker when he said, "If miotics have never cured a case of glaucoma, they have prevented many glaucomatous patients from being cured."

The favorable prognosis does not, in any operative procedure for glaucoma, depend on the acuteness of the attack, but on the fact that such acute attacks occur early in the disease, thereby facilitating early diagnosis and favorable operative results; therefore, if diagnosis is made and operation performed early enough, all forms of glaucoma can be permanently cured.

50 West Fifty-Second Street.

Correlation of Medical and Social Practice.—It is true that all the social workers of today have not had a course in a school of social science, but have received their training and experience while working in a social service organization. This condition of affairs has come about because new organizations have arisen so rapidly that there has not been sufficient trained workers to meet the demand. However, all social workers must have a knowledge of the principles of social service and of the social resources of their community. They should also be able to make a social diagnosis. It is therefore incorrect to call our volunteer clinic secretaries social workers. We are all grateful for their assistance in the clinic, but the work which they do is not social service.—G. Steuer, *Hosp. Soc. Serv.* **9**:35 (Jan.) 1924.

THE VALUE OF DIAGNOSTIC EXCISIONS AND DIAGNOSTIC CURETTAGE IN GYNECOLOGY

WITH ILLUSTRATIVE CASES

ROBERT T. FRANK, M.D.
DENVER

A number of leading physicians have repeatedly voiced the opinion that diagnostic excisions and diagnostic curettages are dangerous, because these small interventions, according to their view, tend to spread cancer cells.[1] Clinical experience does not bear this out. Martzloff [2] recently has sifted the histories of patients with cancers of the cervix, seen and operated on at Johns Hopkins over a period of many years. Of thirty-eight who remained well over long periods of time, fourteen, or 36.8 per cent., had had diagnostic excisions, or excochleation of the growth. Diagnostic excision and curettage save us from committing grave

Fig. 1.—Senile cervix and part of vagina, showing extent of ulcer.

blunders, such as that of performing unnecessary operations on benign conditions and from incomplete operatoins in the presence of malignancy. The following cases are to the point.

CASE 1.—F. H., aged 60, whose menopause occurred twenty-two years ago, and who was nervous, hysterical and constantly running to physicians for examination, was found, ten days ago, to have an ulcer on the cervix. The patient was then told by five different physicians, whom she consulted in turn, that she had a carcinoma of the cervix. Two declared it inoperable, and advised radium and roentgen-ray treatment. I saw this patient in consultation in September, 1923. That day the patient had had one hour of 200 kilovolts of roentgen-ray irradiation of the pelvis and was prepared for a Wertheim hysterectomy the next morning. The uterus was small, senile and freely movable. On the posterior lip of the senile cervix and encroaching 0.5 cm. on the posterior vaginal wall was a superficial, pale ulcer which did not bleed to the touch, and was not indurated (Fig. 1). Clinically, this impressed me as a flabby, senile ulcer, nonmalignant and probably the result of a slight trauma. I advised excision of a specimen. The specimen showed a nonspecific, nonmalignant, superficial ulcer (Fig. 2). Subsequently the ulcer area healed rapidly and has remained healed.

1. Greenough, R. B.: The Handling of Early and Doubtful Cases of Cancer, Ann. Surg. **66**: 185 (Oct.) 1917.
2. Martzloff, K. H.: Carcinoma of the Cervix Uteri, Bull. Johns Hopkins Hosp. **34**: 190 (June) 1923.

This patient, old and a poor operative risk, was saved from a capital operation by the excision of a small specimen for diagnosis.

CASE 2.—D. L., aged 39, the mother of three children, was operated on by me, July 25, 1923. I performed a supravaginal hysterectomy for large, multiple fibroids complicated

Fig. 2.—Low power view of section through ulcer shown in Figure 1; *A*, base of ulcer with leukocytic infiltration; *B*, edge of ulcer; *C*, normal epithelium of portio vaginalis.

by very early pregnancy. August 25, when she presented herself for final examination, to my surprise and concern I noticed a small, suspicious, granular, elevated, readily bleeding

Fig. 3.—Low power view of edge of suspected area on cervix, showing keratosis: *A*, squamous epithelium cut perpendicularly to surface; *B*, same cut horizontally.

spot on the cervix, which did not disappear after two treatments with 10 per cent silver nitrate. Without confiding my suspicion to the patient, I excised the suspect area. Microscopically the lesion proved to be a nonmalignant erosion with some surrounding keratosis. The lesion has since healed (Fig. 3).

If the area had proved to be carcinomatous, I should have felt convinced that the cancer had appeared since the operative intervention practiced only one month previously, because I invariably examine the cervix with minute care before doing a hysterectomy. This scrutiny is essential, as an increasing number of cases in which cancer has been found in the cervical stump are now being put on record.[3] Arbitrarily, all cases appearing within one year of the hysterectomy have been classified as present and overlooked at operation. This grouping is not of necessity correct. Intracervical cancer is more likely to be overlooked than tumors of the portio.

CASE 3.—L. D., aged 64, the mother of five children, passed the menopause ten and a half years before. One week before I saw her, the patient bled considerably from the vagina. Since then she had spotted. The patient was told that she had cancer of the body of the uterus and must submit to immediate removal of the uterus. The woman was frail, senile, and a poor operative risk. The cervix appeared normal; the uterus was slightly enlarged for her age, and retroflexed. Clinically,

Fig. 4.—Low power view of curettings from uterus of woman ten and one-half years after onset of menopause: *A*, portio epithelium, often mistaken for cancer; *B*, atrophic endometrium consisting mainly of stroma; no glands.

a diagnosis of corpus cancer appeared fully justified. Nevertheless, faithful to my invariable rule, I did a most thorough exploratory curettage, June 5, 1923. The amount of curettings obtained was small. The material was cut in serial section, that nothing might be overlooked. Microscopically, the numerous sections showed normal senile mucosa (Fig. 4). The patient, so far, after seven months, has shown no recurrence of the bleeding.

A serious operation was thus avoided in this patient. She is running no undue risk in being observed, for if a corpus carcinoma is developing, which was so minute at the time of operation as to escape a carefully manipulated curet, renewed hemorrhage will doubtless occur. A sharp distinction between the clinical dignity of corpus and cervix cancer must be drawn. In the former, the course is slow and extension is late, so that a reasonable conservatism in doubtful cases is justified. In the latter, the opposite obtains.

3. Frank, R. T.: Cancer in the Cervical Stump; Metastasis in the Vermiform Appendix, Surg., Gynec. & Obst. **35**: 334 (Sept.) 1922. Davis, L.: Carcinoma of the Cervical Stump: Report of Eight Cases, Boston M. & S. J. **188**: 304 (March 8) 1923.

Two cases, which have recently come to my immediate notice, and in which diagnostic curettage was omitted, form an instructive contrast to the three preceding:

CASE 4.—M. L., aged 25, had had the appendix removed three and a half years before I saw her, and the right ovary and tube removed (for cystic ovary [?]). An unconvincing history of gonorrhea three years before I saw her was obtained, supposedly cured without treatment. She had been curetted one year before, for unknown indications. Nine weeks before, a laparotomy was performed for "abdominal tumor." At operation, a two months' pregnancy was found and the abdomen reclosed. Five weeks before I saw her, an abortion was induced, followed by a temperature of 104 F. for three days. I saw the patient in December, 1922. Examination revealed slight bleeding from the uterus; spreads from the cervix showed *Micrococcus catarrhalis* and no gonococci. The tinctorial and morphologic resemblance of these organisms is a frequent source of error which must be borne in mind. A diagnosis of postabortive bleeding was made. I advised styptol and hot douches. I again saw the patient four weeks later. At this time only a slight brownish discharge was found. In March, 1923, I obtained a specimen

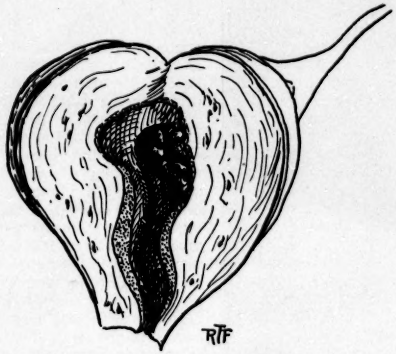


Fig. 5.—Normal uterus laid open, showing small placental polyp near left tubal angle; also insertion of normal left tube.

removed by the same surgeon who had operated for "abdominal tumor." This proved to be the genital organs of the patient, who had since revisited the surgeon in question and complained of an occasional increase of the menstrual bleeding. The preoperative diagnosis was "pus tube and metritis." The sole pathologic change was a small area near the tubal angle, showing an old placental polyp (Figs. 5 and 6). One tube was missing (removed in 1919); the other was completely normal.

There was no indication for this or the previous operation. Nature was completing the cure. At most, a diagnostic curettage might have been justified. The curettings would have disclosed the polyp, and at the same time the curettage would have definitely cured the lesion.

CASE 5.—I received a specimen of the uterus from a woman past the menopause. The operation was performed for irregular uterine bleeding, the uterus showing only slight increase in size. A surgeon did an abdominal supravaginal hysterectomy with a pathologist present. Frozen sections of the mucosa disclosed no malignancy. The sections and the specimen were submitted to me shortly after. The gross specimen could very well pass for a diffuse functional hyperplasia of extreme degree. The frozen sections showed functional hyperplasia. In only one small area was an aggregation of a few suspicious glands noted. Not until numerous paraffin sections were made was the correct diagnosis of diffuse corporeal adenocarcinoma arrived at (Fig. 7). This diagnosis necessarily entailed subsequent removal of the cervix.

A preliminary diagnostic curettage, with a report on the curettings in from twelve to thirty-six hours, would have avoided this serious contretemps. I must

Fig. 6.—Low power view of section through placental polyp shown in Figure 5: *A*, degenerated fetal villus; *B*, spongy layer of maternal decidua.

emphatically warn against the attempt to report on frozen sections of uterine curettings, because a diagnosis based on frozen sections of the endometrium is

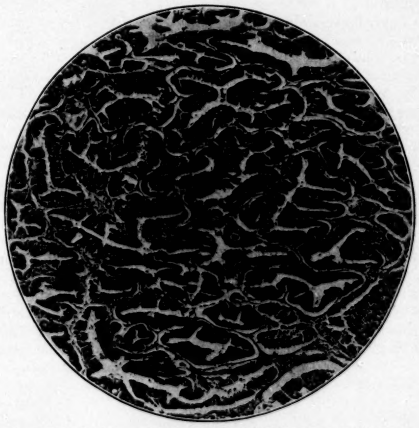


Fig. 7.—Low power view of adenocarcinoma of uterine body.

often misleading or incorrect. It is far safer to accord the pathologist the necessary time for rapid paraffin embedding. This procedure may inconvenience the patient to the extent of necessitating two anesthesias (the curettage can be performed under gas-oxygen narcosis), but offers a safeguard against unnecessary

interventions, on the one hand, or incomplete removal of malignancy, on the other.

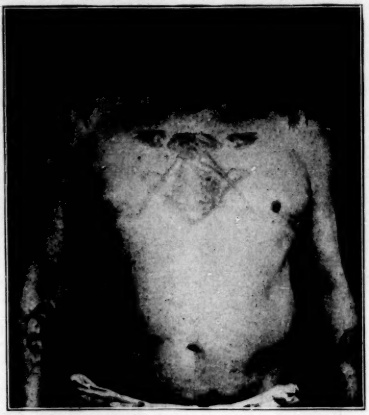
These five examples, a few selected at random among many, appear to me fully to substantiate my thesis not only that exploratory excisions and curettages are justified in gynecology, but also that these small interventions are indispensable. No amount of clinical experience, sagacity and knowledge can take the place of accurate microscopic diagnosis. Those practitioners who fear to use the scissors or scalpel in making their excision can use the cautery knife, which seals the lymphatics and tissue spaces, and thus more surely obviates the possibility of spreading cancer cells. Exploratory curettage never causes dissemination of adenocarcinoma of the corpus. Curettage may, however, produce an attack of pelviperitonitis, if practiced in the presence of acute or subacute cervical or tubal infection. But, after all, we are justified in predicating that no one who is not able to make a safe diagnosis should be entitled to perform this exploration.

In my experience, practitioners, including especially those "who do their own surgery," and also the "occasional operator," omit diagnostic excisions and exploratory curettages more often from a feeling of cocksureness and from ignorance of the many possibilities than from dread of disseminating cancer cells. Too often, I am told that curettage has been performed for bleeding, let us say, and that the curettings have been thrown away instead of being submitted to a pathologist.

Another serious danger to the community, in addition to the overzealous wielder of the scalpel, is the untrained "pathologist," and the lay technician. The rush of hospitals to become "standardized" has strained the output of competent pathologists to the utmost, and many half trained and incompetent individuals at present fill positions of trust and responsibility. I shall never forget the day when two specimens were shown to me by clinicians, who both expressed surprise at the apparent discrepancy between clinical and pathologic diagnosis. The first specimen was a typical decidua of early pregnancy, reported as "carcinoma"; the second, diagnosed by the same pathologist on the same day, was reported as "hyperplasia of the uterine mucosa," and yet this was as typical an adenocarcinoma as that depicted in Figure 7. Small wonder that under such circumstances it is hard to have clinician and pathologist work in harmony and cooperation.

To sum up, the small and almost hypothetic danger incident to diagnostic excision and exploratory curettage in gynecology is far outweighed by the frequent and positive benefits that accrue to patients who are saved from unnecessary radicalism.

Majestic Building.



Pseudo-abdominal tumor accompanying herpes zoster.

Tuberculin Tests.—The sum total of all tuberculin tests is, that with growing experience, one is less and less inclined to attach much importance to their diagnostic value.—John Guy.

HERPES ZOSTER WITH MOTOR PARALYSIS

W. A. BLOEDORN, A.M., M.D.
Lieutenant Commander, Medical Corps, U. S. Navy; Chief of Medical Service, U. S. S. Mercy

AND

L. J. ROBERTS, M.D.
Lieutenant, Medical Corps, U. S. Navy

PHILADELPHIA

Herpes zoster is now generally considered to be an acute infectious disease, to which infection the posterior root ganglions show a decided susceptibility. The lesion is usually an acute hemorrhagic inflammation limited to a few ganglions, those most prone to attack being the gasserian and the ganglions from the third dorsal to the second lumbar spinal roots. The cutaneous lesions are, as a rule, typical and leave little room for doubt regarding the nature of the process.

The involvement of the posterior root ganglions may, however, be secondary to some acute infectious disease such as malaria, typhoid, meningitis or syphilis, and the eruption occurs in the usual fashion.

As a rule, the lesions of zoster are confined to the sensory roots, but occasionally manifestations of motor involvement are observed and one should keep this fact in mind, as the motor symptoms, when occurring, may cause more alarm to the patient and be more disconcerting to the physician than the sensory.

As Hewlett [1] has suggested, howeevr, the close anatomic relationship between the spinal ganglion and the motor fibers in the main nerve trunk would lead us to anticipate frequent spreading of the infection to the motor fibers, with resulting motor paralysis. Such paralyses, however, are not as common as such reasoning might lead us to expect.

CASES IN THE LITERATURE

Knowles,[2] in reporting 286 cases, with a review of the unusual features of the disease, mentioned none as being associated with motor symptoms. On the other hand, information that such paralyses do occur occasionally is obtained by reference to the literature. The instances of ocular and facial paralyses associated with herpes zoster have been relatively numerous.

In a review of the literature, Hunt [3] was able to collect reports of 104 cases. Somewhat rarer are instances of paralysis of the extremities associated with herpetic lesions.

Hewlett,[1] in 1906, found references to eleven such cases and some of these were doubtful ones. We have

1. Hewlett, A. W.: The Motor Complications of Herpes Zoster, California State J. Med. **4**: 119 (April) 1906.
2. Knowles, F. C.: Herpes Zoster; Report of Two Hundred and Eighty-Six Cases, with a Review of the Unusual Features of the Disease, Pennsylvania M. J. **15**: 615, 1911-1912.
3. Hunt, J. R.: The Paralytic Complications of Herpes Zoster of the Cephalic Extremity, J. A. M. A. **53**: 1456 (Oct. 30) 1909.

been able to find reference to only ten such cases reported since Hewlett's careful review.[4]

Most infrequent of all, apparently, is the occurrence of paralysis of muscles of the abdominal wall as a complication of herpes zoster of the same region. We have been able to find thirteen such cases reported in the literature.[5] Ten of these were reported by Soderbergh.[5] Of these, nine exhibited relatively slight paralysis of one side of the abdomen or the other, corresponding to the spinal segment which supplied the area of the skin affected. In the tenth, however, there was such a marked protrusion of the abdominal wall in the region affected that the patient entered the hospital for "abdominal pseudohernia."

A similar case was reported by Worster-Drought.[5] His patient, a man, aged 61, under treatment for herpes zoster affecting the area of the skin supplied by the twelfth thoracic nerve, developed, twelve days after the onset of the zoster, what he called a "rupture" in the affected region. Examination revealed a paralysis of the muscles in this region.

Two of the reported cases of herpes zoster associated with paralysis of the abdominal muscles occurred in patients aged 60 and 61, who consulted their physicians for suspected abdominal tumor. The first of these was reported by Taylor,[5] in 1895, and the second by Charron [5] in 1921.

The last two cases mentioned present a striking similarity to the following case, which recently came under our observation.

This patient, while accepting calmly his attack of "shingles," became greatly disturbed when motor symptoms developed and the appearance of an abdominal "tumor" called up visions which were distinctly disquieting.

REPORT OF CASE

A retired officer, aged 68, previously in good health, developed a typical eruption of herpes zoster of the area of the skin supplied by fibers from the eleventh left thoracic nerve trunk. Two days later he noticed what he suspected was a tumor in the left flank associated with hyperesthesia in this region. When he came under our observation, one month later, the active eruption had subsided, but the remnants of the zoster were still present and appeared in a zone at the level of the left iliac crest. The eruption had occurred in four groups, one being about 1 inch to the left of the vertebral column, one in the midaxillary line, one midway between these and one near the median abdominal line about 4 cm. below the umbilicus.

In the left lumbar region a marked protrusion was noticed while the patient was standing, but no mass could be palpated. The bulging became much less noticeable when he assumed a reclining position. On increasing the intra-abdominal pressure, the protrusion became more marked. The bulge was in the anterior axillary line and extended, as shown in the illustration, from the crest of the ilium to the umbilicus; so that a line drawn from the iliac crest to the umbilicus would cut the protrusion. A firm edge of muscle could be outlined, running from just internal to the anterior superior spine of the ilium upward and backward, to the lower costal margin at the anterior axillary line. The bulging was posterior to this. In the region of this protrusion, palpation demonstrated a marked flaccidity of the muscles.

Physical examination otherwise revealed nothing worthy of note, except for an occasional extrasystole, and a systolic blood pressure of 180 mm. of mercury. The urine contained a slight trace of albumin and a few casts. The blood picture was normal. The Wassermann reaction was negative. Roentgen-ray examination of the kidneys, ureters and bladder revealed no abnormalities.

The protrusion of the abdominal wall was felt to be due to a paralysis of the abdominal muscles in this region, the posterior portions of the external oblique, the internal oblique, and the transversalis being involved. The location of the paralysis, and the relation of its appearance to the herpetic eruption, made it appear that we were dealing with a case of herpes zoster complicated by involvement of the anterior nerve root.

The patient was reassured, and was much relieved when told that there was no evidence of an abdominal tumor and that the prominent mass was merely due to flaccidity of the muscular wall of the abdomen.

When the patient was last seen, five months later, the protrusion of the abdominal wall had nearly disappeared, although the muscles involved were still somewhat flaccid and a slight bulging could be detected on increase of the intra-abdominal pressure. The electrical reactions were carried out at this time by Lieut. F. L. McDaniel, Medical Corps, U. S. Navy, who obtained a partial reaction of degeneration, in the muscles involved.

COMMENT

The motor involvement in this case, as evidenced by the bulging abdominal wall, was noticed by the patient two days after the herpetic eruption appeared. Whether the anterior nerve root was involved through direct extension of the inflammatory process or indirectly through the blood or lymph stream is difficult to say, although the former appears the more likely hypothesis.

The possibility of the occurrence of motor paralysis accompanying herpes zoster should not be lost sight of, although most standard textbooks do not even mention such a contingency.

The outlook for these patients with motor nerve involvement appears good, as a rule. Most of them show decided and steady improvement, although the motor function returns slowly. In a few cases, however, there appears to be some permanent weakness of the involved muscles.

4. Lemierre, A., et Lantuéjoul, P.: Zona du plexus cervical avec troubles moteurs, Bull. et mém. Soc. méd. d. hôp. de Par. **42**: 1003 (Nov.) 1918. Weber, F. P.: Herpes Zoster with Paralysis of Arm, Brit. J. Dermat. **27**: 408 (Nov.) 1915. Bruce, Alexander: Unusual Sequela of Herpes Zoster (Posterior Poliomyelitis?), Rev. Neurol. & Psychiat. **5**: 885, 1907. Souques, Baudouin and Lantuéjoul: Zona et paralysie radiculaires du membre supérieur, Nouv. iconog. de la Salpêtrière **27**: 251, 1914. Magnus, V.: Motoriske og sensible forstyrrelser ved Herpes Zoster, Norsk Mag. f. Lægevidensk. **77**: 1612, 1916.

5. Worster-Drought, Cecil: Herpes Zoster with Localized Muscular Paralysis, Brit. M. J. **1**: 970 (June 9) 1923. Taylor, Frederick: A Case of Shingles Followed by Paralysis of the Abdominal Muscles, Guy's Hosp. Rep. **52**: 37, 1895. Soderbergh, Gotthard: Syndrome Moteurs de l'abdomen en presence de zona intercostal, Acta Med. Scand. **54**: 170 (Nov.) 1921. Charron, Louis: Neurite zosterienne du Tronc, J. de méd. de Bordeaux **92**: 588 (Dec. 25) 1921.

IDIOSYNCRASY TO CINCHOPHEN

F. J. SCULLY, M.D.
HOT SPRINGS, ARK.

Since the introduction of cinchophen in 1911, untoward effects following its use have been recorded in only a few instances. Toxic symptoms have been reported by Brugsch,[1] Hanzlik and Scott,[2] Pratt [3] and Schroeder,[4] after administering doses ordinarily employed in gout and arthritis. Skin eruptions were also noted by Müller,[5] Phillips,[6] and Herrick [7] in a few cases. No mention is made of the occurrence of marked vasomotor depression following its use. For

1. Brugsch, T.: Diagnose, Wesen und Behandlung der Gicht, Berl. klin. Wchnschr. **49**: 1597 (Aug.) 1912.

2. Hanzlik, P. J., and Scott, R. W.: Cinchophen, Neocinchophen and Novaspirin in Rheumatic Fever, J. A. M. A. **76**: 1728 (June 18) 1921.

3. Pratt, J. H.: Atophan Therapy, Endocrinology and Metabolism, New York, D. Appleton & Co., 1922, p. 411.

4. Schroeder, K., quoted in Atophan Poisoning, editorial, Brit. M. J. **1**: 148 (Jan. 27) 1923.

5. Müller: Nebenwirkung des Atophan, Therap. Monatsh. **27**: 468 (June) 1913.

6. Phillips, John: Skin Rashes Following the Administration of Atophan, J. A. M. A. **61**: 1040 (Sept. 27) 1913.

7. Herrick, W. W.: A Scarlatiniform Rash from Atophan, J. A. M. A. **61**: 1376 (Oct. 11) 1913.

this reason a case is reported in which such a reaction occurred after a single dose.

REPORT OF CASE

G. B., a man, aged 48, seen, Nov. 11, 1922, complained of pain and swelling of the phalangeal joints of both hands, most marked in the right hand. The feet also were involved, but to a less degree. The patient had been having recurrent attacks for the last ten years, each attack being longer in duration. The present attack had started two weeks before. The patient's father died of cancer of the stomach, and the mother from diabetes. The patient had had no other serious illness. He was formerly in the liquor business, but since prohibition had been in the meat business.

The patient was in fairly good health. He was well nourished and had a good color tone. The blood pressure was 120 systolic, and 78 diastolic. The pulse was regular, with a rate 80. The heart tones were clear. No abnormal findings were noted except those associated with the gouty condition. Along the outer margin of both ears many tophi were noted. The middle phalangeal joints of the right hand were red, swollen and acutely tender. In that of the index finger there were several nodules from the deposit of sodium biurate. The left hand showed a similar enlargement of the phalangeal joints, but no marked acute reaction was present. The right ankle was slightly tender, and both great toes were enlarged at the metatarsophalangeal joints.

Laboratory examination of the urine showed a trace of albumin. A kidney function test showed the excretion of 27.5 per cent. of the phenolsulphonephthalein in two hours, and chemical examination of the blood gave 5.43 mg. of uric acid to the hundred cubic centimeters. A blood count showed 92 per cent. hemoglobin, 4,680,000 red cells and 4,800 white cells. The Wassermann test was negative. Crystals of sodium biurate were obtained from the tophi in the ears. A roentgenogram of the hands showed typical gouty changes with periosteal changes and thickening along the proximal phalanges, and biurate deposits about the middle phalangeal joints.

The patient was given a restricted diet and wine of colchicum. Mild hydrotherapeutic measures were also instituted. After several days the patient complained of the medicine upsetting his stomach. The colchicum was discontinued, and cinchophen was ordered. He received the first dose, 7½ grains (0.5 gm.), at 9 p. m. At 1:30 a. m. he awoke with a feeling of flushing in the hands and face, and he felt hot all over. His heart began to beat forcibly, and he became frightened. After calling for the nurse he collapsed on the floor and had to be helped to bed. Following this he had a chill, and the skin became pale and he felt cold. The bowels moved freely. The chill lasted from ten to fifteen minutes and was accompanied by marked pain in the swollen joints. Following this the skin became flushed and he became warm again. There was some sweating. He felt nauseated but did not vomit. There was a feeling of precordial tension, and he had a bursting feeling in the head. The pulse was rapid, 120, but the heart tones were clear. The blood pressure dropped to 65 systolic, and 42 diastolic. He was given aromatic spirit of ammonia and strychnin, 1/30 grain (0.00216 gm.), hypodermically, without much change in the blood pressure. Pressure was then applied to the abdomen, and within ten minutes the blood pressure rose to 80 systolic, and 44 diastolic. After an hour it was 108 systolic, and 72 diastolic, with a pulse of 90. The head pressure and precordial tension gradually disappeared, leaving a feeling of exhaustion. The skin became dry, and the patient became more comfortable. About twelve hours later he had a similar attack, but less severe; this occurred without taking any more of the drug, and it is difficult to explain its occurrence. That evening the blood pressure was 118 systolic, 62 diastolic, and the pulse was 80. He had no complaint except that of weakness. The pain and swelling of the joints was less. Following this he was placed on salicylates and wine of colchicum, and made a good recovery.

On questioning, it developed that he had a similar reaction in March, 1922, after taking a single tablet of cinchophen. His attending physician at that time did not consider the drug to be the cause of the reaction, and it was repeated four days later with another severe reaction. This would indicate a very marked idiosyncrasy to the drug.

COMMENT

The reaction in this case was unusually severe and alarming. In many respects it was similar to that observed after large injections of foreign protein. The rapid, weak pulse and low blood pressure with good heart action indicated a marked depression in his vasomotor system rather than a cardiac phenomenon. There was no widening of the cardiac dulness and no weakness of the heart tones, though the pulse was rapid and feeble. The abdominal veins were evidently dilated with a stasis of blood, as pressure on the abdomen brought about a rise of blood pressure and relief of the symptoms.

The reaction cannot be considered as a true anaphylaxis but rather a peculiar individual sensitiveness to the particular drug employed. Many drugs have been observed to produce unusual and unexpected reactions, particularly many of the new synthetic chemical compounds. Probably the most common untoward manifestations noted are the skin rashes or eruptions,[8] and these have had more investigation than other adverse phenomena. This phase has been considered by Ayers[9] in phenolphthalein dermatitis, and by Wile, Wright and Smith[10] in iodid and bromid reactions. The latter observers could not demonstrate any type of immune substance, but considered the ultimate explanation as lying in a complex biochemical reaction. Further study will be necessary to solve finally the question why some patients will be made ill by ordinary doses of various drugs that have no untoward effect in normal persons.

The severe reaction in this case will serve to emphasize the danger of indiscriminate use of cinchophen.

301 Dugan Stuart Building.

TRANSPLANTATION OF URETERS INTO RECTUM

END-RESULTS IN THIRTY-FIVE CASES OF EXSTROPHY OF THE BLADDER *

CHARLES H. MAYO, M.D.
AND
WALTMAN WALTERS, M.D.
ROCHESTER, MINN.

In 1919, C. H. Mayo[1] reviewed the subject of exstrophy of the bladder, and described the various operations for the condition that have been tried, modified, and tried again since the time of Simon[2] and Roux.[3] He also described in detail his method of transplanting the ureters into the rectum, applying to the ureters Coffey's principles of common bile duct transplantation.

8. Drug Exanthems, editorial, J. A. M. A. **80**: 185 (Jan. 20) 1923.
9. Ayers, Samuel: Phenolphthalein Dermatitis, J. A. M. A. **77**: 1722 (Nov. 26) 1921.
10. Wile, U. J.; Wright, C. S., and Smith, N. R.: A Preliminary Study of the Experimental Aspects of Iodid and Bromid Exanthems, Arch. Dermat. & Syph. **6**: 529 (Nov.) 1922.

* From the Section on Surgery, Mayo Clinic.

1. Mayo, C. H.: Exstrophy of the Bladder: Contributions to Medical and Biological Research, New York: Paul B. Hoeber, 1919, pp. 1095-1110.
2. Simon, J.: Ectropia Vesicae; Operation for Directing the Orifices of the Ureters into the Rectum; Temporary Success; Subsequent Death; Autopsy, Lancet **2**: 568-570, 1852. Congenital Imperfection of the Urinary Organs Treated by Operation, Tr. Path. Soc. London **6**: 256-258, 1855.
3. Roux, J.: Exstrophie de la vessie; autoplastie; insuccès; établissement définitif d'un canalcutané propue à maintenir en place un réservoir en caoutchouc vulcanisé, Union méd. **7**: 449-453, 1853.

METHOD OF TRANSPLANTATION

Briefly, this method consists of intraperitoneal isolation of the right ureter, and its division about 2.5 cm. from the wall of the bladder. A longitudinal incision is made through the outer coats of the rectosigmoid opposite the isolated ureter, which is carried to the mucous membrane, but not through it. Lateral separation is made of tissues each side of the incision, and at its lower end a puncture large enough to insert the ureter is made through the mucosa. After splitting the lower end of the isolated ureter for 0.6 cm., it is drawn through the opening into the bowel by a suture fixed to its end, the needle emerging 1.2 cm. below it, in which position it is anchored by tying the suture externally on the bowel. Interrupted sutures approximate the divided muscle of the intestine over the ureter, the alternate sutures catching a bit of the outer wall of the ureter, and securely fixing it in position. A continuous row of sutures over the line of the interrupted sutures makes an additional protection. The purpose and reason for this type of operation is that the ureters, being covered internally for a distance of 3 cm. by the intestinal mucous membrane, will close with any internal pressure; hence the duct entrance will be closed against ascending gases and liquids, and yet the normal intermittent emptying of the ureter will occur coincident with peristalsis. The left ureter is transplanted from ten to fourteen days after the right, and the mucosa of the bladder excised by knife or cautery later. This method is reported not because it is the only method of treating exstrophy of the bladder surgically, but because it illustrates what can be accomplished by the transplantation of both ureters into the rectum in this condition.

END-RESULTS

Thirty-five patients were observed in the clinic between February, 1912, and November, 1921. The age of the patients varied from 3 to 30 years; the majority were in the second or third decade of life. Both ureters were transplanted in twenty-eight patients; one patient died from peritonitis (an operative mortality of 3.5 per cent.). Letters of inquiry were sent to patients from time to time. The condition of twenty-three of the twenty-seven, Nov. 1, 1921, is here reported; the other four were not traced.

ABSTRACTS OF CASES

CASE 1.—The right ureter was transplanted, Feb. 3, 1912, in a child, aged 7 years; the left was transplanted, February 23, and the mucosa of the bladder excised, March 12. This patient has a good functioning cloacal rectum, but has not full control of the expulsion of urine from it. His general health is good. At times he has pain in the lumbar region. He is able to help with the farm work.

CASE 2.—The right ureter was transplanted, Feb. 21, 1913, in a youth, aged 17; the left was transplanted, December 23, and the bladder was excised, Jan. 14, 1914. The patient can retain urine in the rectum from two to four hours, sometimes longer. According to his father, he is enjoying life to the fullest, and is as healthy as any member of the family.

CASE 3.—The right ureter was transplanted, Dec. 9, 1913, in a woman, aged 30; the left was transplanted, December 24, and the bladder was removed by cautery, Jan. 4, 1914. After the patient recovered, she took a nurse's training course. She is in good health and has been employed steadily as a nurse. She has perfect control of urine, which she passes by rectum. She is able to retain urine in this manner over night.

CASE 4.—The left ureter was transplanted, Sept. 18, 1916, in a man, aged 26; the right was transplanted, September 26. A portion of the bladder was excised, Oct. 19, 1916, and the remainder was removed, Sept. 5, 1918. This patient's rectum functions quite satisfactorily as a urinary receptacle. His general health is good. He was examined by us, Sept. 18, 1923, at which time his health was excellent. There is no evidence of renal infection.

CASE 5.—The right ureter was transplanted, March 24, 1917, in a woman, aged 22; the left was transplanted, April 7, and the bladder was excised, April 20. In 1918, it was necessary to remove the remaining fragments of bladder mucosa by the cautery. The function of the rectum as a cloaca is good. Urine is passed from the rectum three times a day, and sometimes more often.

CASE 6.—The right ureter was transplanted, May 16, 1917, in a youth, aged 18; the left was transplanted, June 18, and the bladder was excised, June 29. The rectum functions as a cloaca. The patient passes urine from the rectum from four to six times daily. At times he has pain in the left lumbar region, with fever.

CASE 7.—The right ureter was transplanted, July 21, 1917, in a child, aged 6 years; the left was transplanted, July 31, and the bladder excised, August 14. The rectum functions well; the urine is controlled perfectly. The skin has not entirely healed over the bladder area.

CASE 8.—The right ureter was transplanted, Oct. 22, 1917, in a child, aged 3 years; the left was transplanted, October 30. The rectum functions well, and the urine, which passes from the rectum three times daily, is controlled. At times the patient has slight lumbar pain.

CASE 9.—The right ureter was transplanted, Oct. 27, 1917, in a woman, aged 22; the left was transplanted, December 5, and the bladder was excised, December 15. The urine passes from the rectum four times during the day, and once at night, and is perfectly controllable. This patient has married, but has no children.

CASE 10.—This patient, a man, aged 21, has absolute control of the elimination of urine from the rectum, which is passed about twelve times a day. At times he has pain in the right lumbar region. His appetite is good. He sleeps well, and his general health is very good.

CASE 11.—The right ureter was transplanted, July 30, 1918, in a youth, aged 17; the left was transplanted, September 27. A left urinary sinus followed, and was repaired, April 11, 1919. Urine was retained in the rectum from eight to ten hours. At times the patient had pain in the left lumbar region.

CASE 12.—The right ureter was transplanted, Nov. 22, 1918, in a man, aged 25; the left was transplanted, December 2, and the bladder was excised, Feb. 3, 1919. The patient had absolute control of urination from the rectum, which occurred six times a day.

CASE 13.—The right ureter was transplanted, Dec. 4, 1919, in a child, aged 3½ years; the left was transplanted, December 26. The patient has good rectal function, and good urinary control. He passes urine from the rectum four times a day, and once during the night.

Five patients were operated on in 1921; all are living and well, and have satisfactory control of urination from the rectum. Three patients had both ureters transplanted during 1922. In September, 1923, all were living.

COMMENT

It has been the experience in the Mayo Clinic that the highest mortality follows transplantation of the first ureter. Patients who survive the transplantation of the first ureter will usually survive the transplantation of the second ureter from ten to fourteen days later. Four patients died following the transplantation of the first ureter, one from pyelonephritis, two from peritonitis, and one from hemorrhage, but these are not considered here.

According to statistical records, 50 per cent. of all persons with this unfortunate developmental defect die if unrelieved by the tenth year, and 66 per cent. die by the twentieth year. Four patients of the series, all with good operative results, died within three years

after operation; one from pulmonary tuberculosis, one from typhoid fever, one from general carcinomatosis originating from the chronically irritated bladder mucosa, and one from pneumonia. Two patients with exstrophy died from carcinoma of the bladder, which was well advanced when first seen. Operation was not performed.

Seventeen of the twenty-eight patients returned for removal of the bladder; this was done either by knife or by cautery excision and suture, or by excision and transplantation of a fascial flap, as suggested by Kanavel.[4]

All of the patients from whom letters have been received say they have enjoyed living since the operation, which diverted their urine from their clothing to the rectum, and that they have been able to carry on comfortably their various duties in life.

SUPRARENAL HEMORRHAGE IN THE NEW-BORN *

WILLIAM J. CORCORAN, M.D.
AND
ALFRED A. STRAUSS, M.D.
CHICAGO

Medical literature contains the reports of about 100 cases of extensive suprarenal hemorrhage in the newborn, but no record has been found of another case in which operation has been performed, with recovery. Possibly this is because the course of the disease is too rapid to allow the development of symptoms referable to the gland itself. Clinically, the condition resembles a progressing internal hemorrhage, though in certain cases there are signs of pressure on adjacent organs. This was true in the case reported here, in which the compression signs were so definite as to constitute a typical picture of hemorrhage in, or about, the left suprarenal capsule.

Following the publication of Mattei's [1] statistics of necropsies on fetuses and the new-born, suprarenal hemorrhage was no longer considered an uncommon disease. In more recent years, other investigators have shown that microscopically demonstrable hemorrhages in the suprarenal gland are an almost constant phenomena of the newly born. The vascular lesions have been found to vary from simple hyperemia to extensive interstitial hemorrhage. The most common site of hemorrhage is the inner cortical layers or reticulovascular zone, as it is richly supplied with small vessels, although large effusions in the medullary substance are not uncommon. In some cases the interstitial infiltration of blood gives the gland the appearance of the fetal liver, while in others in which the vascular lesion has been greater, a large hematoma is found with destruction of the parenchyma and necrosis of the cortex. Marked distention of the gland occurs in these cases, and it is not infrequent to find at necropsy that the hematoma has broken into the retroperitoneal tissue, the abdominal cavity, as in the case reported by Garipuy and Schreiber,[2] or, as in Weltmann's [3] case, into the lumbar muscles.

Bilateral hemorrhage of the suprarenal capsule is far more common than unilateral hemorrhage, and the right capsule seems to be more often affected than the left. According to Lasch,[4] it occurs more frequently in females than in males. Marantic new-born infants seem more susceptible than well nourished infants.

The association of eclampsia in the mother and vascular lesions of the suprarenal is recorded in a number of cases reported by Magnus,[5] Doerner [6] and Dienst.[7] And there is some evidence that the condition may be of infectious origin in the cases reported by Kempf,[8] which followed an inflammatory condition of the intestines. Simmonds [9] found septic thrombi of the suprarenal veins in several cases, and Toepffer [10] refers to one of his cases in which the mother was tuberculous. In this case a thrombus was located in the medullary portion of the capsule, although no signs of tuberculosis were demonstrated in the infant. Reisman [11] isolated *Staphylococcus aureus* and *albus* in pure culture from the blood and tissues in four cases; and Eustace Talbot [12] recovered a streptococcus from the blood in one of his cases. A pure growth of streptococcus was obtained from the heart's blood in Gunson's [13] case. The author states that the mother had peurperal fever, and that there was some discharge from the infant's navel. The baby had a temperature of 102 F. There was a cellulitis of both forearms, and a patchy erythema of the trunks and lower limbs. The infant died on the sixth day, and the necropsy revealed a very large hemorrhage within the intact capsule of the right suprarenal gland. In three of Langmead's [14] cases, fever was present; and each showed a purpuric eruption on various portions of the trunk and limbs. Cultures taken from the heart's blood remained sterile in two of these cases and showed *B. coli* in the third.

Langlois and Charrin [15] produced engorgement of the suprarenals of rabbits by hypodermic injection of *B. pyocyaneus;* and Roux and Yersin [16] obtained similar results by using *B. diphtheriae.*

The cases in which infection seems to have contributed to the cause of suprarenal hemorrhage are few when compared to the large number in which no such association is justifiable either clinically or bacteriologically.

Various other theories regarding the cause of suprarenal hemorrhage have been suggested. Magnus thinks that the liver may compress the vena cava, causing hyperemia of the abdominal viscera and effusion of blood into the suprarenal tissue. Simmonds considers thrombosis of the suprarenal veins the most frequent cause. Other investigators suggest syphilis, and Morison [17] thinks that hemophilia may be the etiologic factor.

4. Kanavel, A. B.: Transplantation of Fascia Lata in Exstrophy of the Bladder, Complete Defects in the Abdominal Wall, and Spina Bifida, Surg. Clin., Chicago **1**: 153-167 (Feb.) 1917.

* From the New-Born Service of the Chicago Lying-In Hospital.

1. Mattei, R.: Ueber die Häufigkeit und Ursache der einfachen Kongestion und Hämorrhagie der Nebennieren, Schmidts Jahrb. **129**: 1868.

2. Garipuy and Schreiber: Un cas de mort d'un nouveau né par hemorrhagie surrénale, Bull. Soc. d'obst. de Paris **11**: 23, 1908.

3. Weltmann, O.: Nebennierenhämatome, Wien. klin. Wchnschr. **24**: 728, 1911.

4. Lasch, C. H.: Beitr. z. klin. Chir. **125**: 467, 1922.

5. Magnus, G.: Nebennierenblutungen bei Neugeborenen, Berl. klin. Wchnschr. **58**: 1119, 1911.

6. Doerner: Nebennierenblutungen bei Neugeborenen, Vrtljschr. f. gerichtl. Med. **26**: 1903.

7. Dienst, A.: Neuere Untersuchungen über des Wesen der Eklampsie, Samml. klin. Vortr., 1902.

8. Kempf, H.: Ueber die Bedeutung der Nebennierenblutungen für den plötzlichen, Vrtljschr. f. gerichtl. Med. **3**, 1918.

9. Simmonds, M.: Ueber Nebennierenblutungen, Virchows Arch. f. path. Anat. **160**, 1902.

10. Toepffer, H.: Ueber Nebbierenblutungen bei Neugeborenen, Arch. f. Gynäk. **112**, 1920.

11. Riesman: Post Mortem Reports, University Hospital, Philadelphia.

12. Talbot, Eustace: St. Bartholomew's Hospital Reports, 1900.

13. Gunson, E. B.: Suprarenal Hemorrhage in an Infant, Proc. Roy. Soc. Med. London Sect. Dis. Child. **54**, 1914-1915.

14. Langmead, F.: On Three Cases of Suprarenal Apoplexy in Children, Lancet **1**, 1904.

15. Langlois and Charrin: Compt. rend. Soc. de biol., 1893.

16. Roux and Yersin: Ann. de l'Inst. Pasteur, 1899.

17. Morison, B. G.: Suprarenal Hemorrhage in an Infant and Its Relation to Hemophilia, Lancet **1**: 1620, 1908.

In reviewing the reported cases of suprarenal hemorrhage occurring in new-born babies, one is inclined to doubt any uniform causation. Trauma and asphyxia are the etiologic factors in the majority of cases, and, in a few, some toxic influence predominates the onset.

A certain amount of venous congestion attends every birth, and in many instances this amounts to a generalized asphyxia. When the period of expulsion is

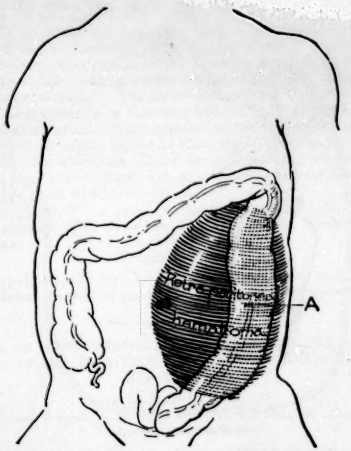


Fig. 1.—Position and extent of hematoma: *A*, flattened descending colon.

prolonged, disturbances of circulation become greater and venous stasis more marked. The mechanical effect of uterine contractions on the fetus and secondarily on the delicate, friable tissue of the suprarenal capsule, rich in venous vessels, is quite obvious. Careless methods of resuscitation, particularly Schultze's swinging maneuver in unskilled hands, are certainly responsible for many vascular lesions of the suprarenal gland.

The course of the disease is too rapid to permit of definite symptoms referable to the suprarenal gland. Any loss of chromaffin tissue due to destruction of suprarenal substance is compensated for by chromaffin tissue in other parts of the body. Roessle [18] noted a patchy pigmentation of the palate in one case, but the typical pigmentation seen in Addison's disease has not been observed in the new-born.

In general, the symptoms resemble those of an internal hemorrhage. There is rapid, shallow breathing, increasing anemia, air hunger, and restlessness. Fever is commonly present. Feedings are refused; or, if taken, vomiting occurs. Convulsions are not uncommon.

Extensive suprarenal hematomas may be palpated through the abdominal wall. In the case reported here, the tumor mass extended from the lower costal margin beneath the brim of the pelvis, and a bulging of the left side of the abdomen could be clearly seen. Pressure symptoms are sometimes present. Von Reuss [19] reports disturbances of the liver and spleen from pressure. The colon may be compressed, giving rise to symptoms of intestinal obstruction. In our case, the infant vomited fecal material. Hemorrhage of the left suprarenal gland in male infants may compress the left spermatic vein, causing a swelling of the scrotum.

18. Roessle, R.: Beiträge zur Pathologie der Nebennieren, München. med. Wchnschr., 1910, p. 1380.
19. Von Reuss, A. R.: Diseases of the New-Born, 1921.

REPORT OF CASE

The mother of S., a boy, born at the Chicago Lying-In Hospital, was a quadripara. There was no history in the family of tuberculosis or syphilis. The mother's Wassermann reaction was negative. Labor began at the anticipated term. The first stage lasted twelve hours, with severe pains. There was some delay on the part of the family in getting the mother to the hospital, and as a consequence delivery was precipitate while the mother was being carried on a hospital stretcher. The baby weighed 5,575 gm. (12 pounds, 4 ounces). He cried at once and there were no external signs of asphyxia. The babe was put to the breast after eight hours and thereafter at four hour intervals. He was vigorous in his efforts at the breast, and in every respect reacted like a normal newborn infant until the fourth day, when he became quite restless and refused to nurse. His temperature rose to 102 F. He vomited several times. Physical examination at this time showed what was thought to be an enlarged spleen, but no other abnormal findings were noted. An increased amount of water was given the baby, but on the following day the temperature reached 103 F. The nurse's notes on the hospital chart during this last twenty-four hours recorded the pallor of the infant and the difficulty with which he was aroused for feedings. He had had several loose, greenish, bowel movements containing an excessive amount of mucus.

Examination on the morning of the fifth day revealed a large tumor mass in the left side of the abdomen. The upper edge was beneath the costal margin, and the lower portion extended into the pelvis. The tumor was firm and movable. The infant cried as though in pain, and during the examination vomited a small amount of fecal material. The babe was then given a barium enema and roentgenographed. The barium filled the rectum, but a complete barrier prevented even a trace from entering the descending colon. Shortly after the roentgen-ray examination, the baby again vomited fecal material. The tumor mass could be clearly seen to bulge the left abdomen. There was a faint ecchymosis of the left inguinal region, and the left side of the scrotum was considerably fuller than the right. On account of the fecal vomiting, the rapidly progressing anemia, and the increase in the size of the mass, operative measures seemed indicated.

Fig. 2.—Compression exerted on descending colon by tumor mass: *A*, flattened descending colon.

On the same afternoon, under light ether anesthesia, a small oblique incision was made below the costal margin, similar to a kidney incision. The muscles were divided, and the peritoneum was pushed forward. This revealed a tremendously large hematoma within the intact suprarenal capsule. It was about the size of a fetal head, and pressed directly against the descending colon, flattening it out like a ribbon. The blood tumor was removed, and a persistent bleeding point on the outer pole of the suprarenal gland was ligated. A small drain was placed in the cavity, and the wound was closed as usual. A culture made from the blood of the tumor remained sterile after four days' growth.

Within twelve hours, all symptoms of intestinal obstruction were relieved. The infant took his food greedily and did not

vomit. There was a steady increase in weight, and the anemia cleared up within a short time. The baby was examined several months later, and was found to be normal in every respect.

COMMENT

The character of the hematoma with its sterile, central, firm thrombus, leads us to assume that a vascular lesion of the suprarenal gland occurred during the hard pains of the first stage of labor. The infant was very large, and the intensity of the uterine contractions was sufficient to cause considerable pressure directly on the fetal body, and secondarily on the soft, friable tissue of the suprarenal gland. The manipulation that was necessary immediately following the precipitate delivery may have intensified the hemorrhage.

104 South Michigan Avenue.

Clinical Notes, Suggestions, and New Instruments

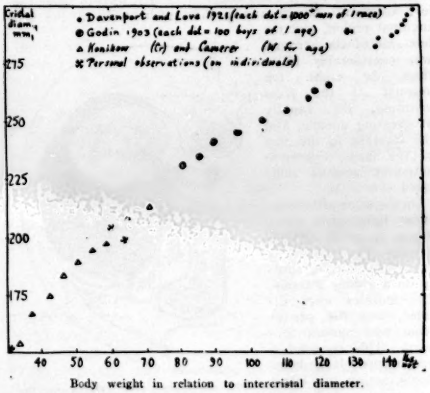
APPLIED ANTHROPOMETRY

HORACE GRAY, M.D., AND A. M. WALKER, M.D., BOSTON

In a recent paper[1] on a possible use of body diameters in the practice of medicine, two other possibilities were hinted at. Some suggestive evidence prompts this preliminary note, partly because of probable delay in securing final proof, and partly because of the potential value of these two postulates:

1. Body weight appears to vary as the greatest diameter of the pelvis (cristal breadth, outer edges). This is indicated by the uniformity and slope of the curve resulting from plotting points for these two variables, recorded for both individuals and groups, as in the accompanying chart.

2. Differential diagnosis between ulcer and gallbladder disease may be aided by ratios between chest measurements and height. The chest girth (xiphoid level, midrespiratory phase)



Body weight in relation to intercristal diameter.

amounted to at least 48.1 per cent. of the height in each of eleven women with gallstones, but in four women with ulcer the ratio was 47.5 or less. The demarcating ratio may then be expected to prove not far from 48 per cent. Diameters are equally serviceable. In men, so far, our results have been inclusive. We are collecting further data.

32 The Fenway.

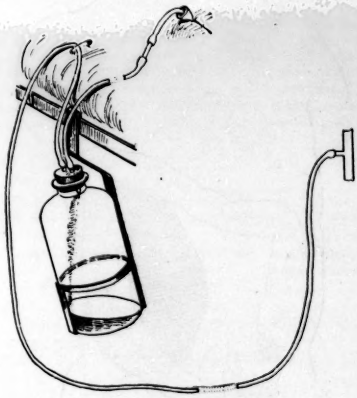
1. Gray, Horace, and Parmenter, D. C.: Chest Depth as an Index of Body Weight, J. A. M. A. 81:2183 (Dec. 29) 1923.

A BEDSIDE BOTTLE HOLDER

EVERETT E. ANGLE, M.D., LINCOLN, NEB.

This holder is simply made and simple in its action, yet it has filled a want at the James Buchanan Brady Foundation for Urology at the New York Hospital.

The holder hooks onto the side of the bed and disappears under it. A 2 liter bottle is thus held well under the bed where it cannot possibly be hit by any one passing or standing beside the bed. The bottle, while held safely out of the



Bedside bottle holder.

way, is still accessible when it needs to be emptied or when one wishes to observe the amount or character of its contents.

The holder is constructed with a wide steel band that is so bent as to hook over the rail of the bed and then curve back under the bed before forming the floor of the rack. One hoop is sufficient to hold the bottle in place, and allows it to be easily inserted and removed.

407 Funk Building.

PLASTIC REPAIR OF DEPRESSED FRACTURE OF LOWER ORBITAL RIM

RALPH H. GOLDTHWAITE, M.D., FORT BENNING, GA.
Major, M. C., U. S. Army

Fracture of the orbital rim, with formation of a depressed notch, may occur from any hard, concentrated blow on the cheek prominence. The bone gives way at about the suture line of the malar bone with the supramaxilla, and the whole inner half of the malar bone is driven into the supramaxilla, telescoping the antrum. As it is impossible to lift the depressed bone from within or without, these cases have usually been left as they were. With the subsidence of inflammatory reaction, the depression becomes more marked; and in very pronounced cases a repair has been made by means of a fascia lata, rib or tibia transplant being fitted into the defect to form the orbital rim. While some satisfactory results have been obtained in this way, there are many chances of poor results, from improper fit of the graft, infection, extrusion or displacement. It is, moreover, quite an extended surgical procedure. If some effective means were at hand to replace the bone immediately after the accident, it would give a normal contour in a far more satisfactory and simple manner. On being faced with a fresh case of this injury, it occurred to me that the bone could be rotated from its outer angle at the zygomatic arch, using the malar bone as a lever, thus raising the inner end. When the break is not over a few days old, this procedure is perfectly successful and very simple, as shown by the result in two cases:

REPORT OF CASES

CASE 1.—H. M., a private in Company B, Twenty-Ninth Infantry, was working with a pick, May 9, 1923, when the metal end slid down the handle during an upstroke and was driven against his face with all the force of the upswing, and crushed in the malar bone at the orbital rim. May 10, under ether anesthesia, an incision was made in the right cheek above the last molar tooth, and a periosteal elevator, flat and strong (of the Sayre type) was introduced through the incision; it was kept closely applied to the supramaxilla, and was slid up under the zygomatic arch at the anterior origin. When it was well engaged in the crevice, a strong rotary twist was given to the handle of the elevator, the fingers of the other hand being placed on the orbital end of the fracture to guard the movement. The malar bone rotated with this twist on its outer corner as a fulcrum; and the inner impacted edge was lifted up to its original position with disappearance of the deformity. A catgut suture to close the incision in the cheek completed the operation. There was no tendency to recurrence of the deformity or displacement, and healing in normal relation took place without complications.

CASE 2.—W. C., a prisoner, was injured, April 27, in the same manner. The operation, on April 29, was similar in all respects.

CONCLUSION

It would appear that we had in this procedure a perfectly satisfactory method of correcting the deformity in recent cases.

USE OF APONEUROSIS OF EXTERNAL OBLIQUE AS A SOURCE OF LIVING SUTURES FOR INGUINAL HERNIOTOMY *

FRANK ADAIR, M.D., NEW YORK
Assistant Surgeon, Hospital for Ruptured and Crippled; Assistant Surgeon, Memorial Hospital

In 1881, Gluck,[1] during his experimenting on the direct transplantation of muscle in chickens, found that tendon remains viable when transplanted. This fact led several surgeons successfully to transplant tendons in man. Kirschner,[2] in 1910, was the first to suggest the use of fascia for purposes of transplantation; he also suggested its practical possibilities.

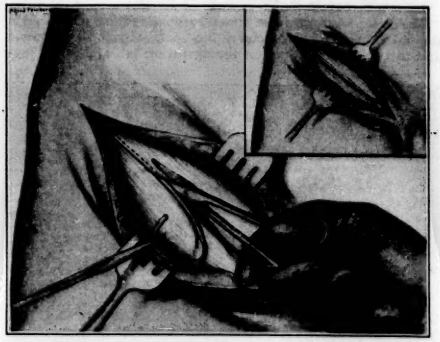


Fig. 1.—The aponeurosis of the external oblique muscle has been split upward for about 6 inches. The operator is cutting a suture strip one-eighth inch wide.

The next year Lewis and Davis,[3] by a most finished set of animal experiments, greatly stimulated interest in this field of surgery. These workers followed their first report by a second paper,[4] clearly demonstrating the practical applicability; particularly the value of the fascial transplant in making up for deficiencies in injured tendon. Lewis and Davis demonstrated that, no matter what the size or shape of the fascial transplant, it remains alive. If placed in the subcutaneous tissues, the fascial graft shrinks to about one-third its original size. If sutured carefully into a deficient space in tendon or fascia, the graft does not shrink. Gallie and LeMesurier[5] took strips of fascia lata one-eighth inch wide and threaded these through large-eyed needles, using them as suture material.

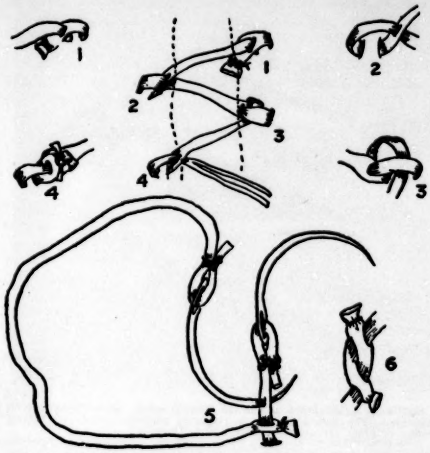


Fig. 2.—Method of inserting fascial suture: 1, anchoring suture at commencement by looping it through itself; 2, fixation of suture at each loop by passing it through itself; 3, fixation by passing suture through itself and tying in knot; 4, ending of suture by passing through itself, splitting, and tying ends in knot; 5, method of joining new suture to one that has been inserted; 6, joining completed (Gallie and LeMesurier).

These workers demonstrated that such sutures, when examined at varying periods following operation, always remain viable. At no time does such a strip degenerate or become absorbed. They suggested using these sutures in difficult cases of large ventral and inguinal hernia. They went further, and later reported that they had not had a single recurrence in a series of fifty such difficult cases. Such statistics are remarkable; particularly so, when some of our best surgical clinics are reporting recurrences in this type of case, of from 10 to 18 per cent. For the details of the technic the reader is referred to their original communications.

My experience in using their fascia lata technic has pointed out a more simple and more direct method of obtaining these viable sutures. The modification outlined here has all the advantage of the use of Gallie's living suture material, without the disadvantage of creating a new surgical wound in order to obtain these sutures. By this method, the sutures may be had almost as a part of the necessary step of splitting upward the aponeurosis of the external oblique muscle. The following is my procedure:

1. All fat and subcutaneous tissue adhering to the external surface of the aponeurosis of the external oblique are carefully cleared away, by scalpel and gauze dissection. This is done over an area 1 inch wide, extending from the external inguinal ring, upward and outward, for from 5 to 6 inches. The aponeurosis, thus cleared, appears white and glistening.

2. The aponeurosis is split in the usual way, beginning at the external inguinal ring and continuing upward 5 or 6 inches, parallel with the fibers or "grain" of the aponeurosis.

* Part of a Report on Inguinal Hernia read before the Surgical Section of the New York Academy of Medicine, Nov. 2, 1923.

1. Gluck, T.: Ueber Muskel und Schnekplastik, Arch. f. klin. Chir. **26**: 61, 1881.

2. Kirschner: Die praktischen Ergebnisse der frein Fascientransplantation, Arch. f. klin. Chir. **112**: 888, 1910.

3. Lewis, Dean, and Davis, C. B.: Experimental Direct Transplantation of Tendon and Fascia, J. A. M. A. **57**: 540 (Aug. 12) 1911.

4. Lewis, Dean, and Davis, C. B.: Repair of Tendons by Fascial Transplantation, J. A. M. A. **62**: 602 (Feb. 21) 1914.

5. Gallie, W. E., and LeMesurier, A. B.: The Use of Living Sutures in Operative Surgery, Canadian M. A. J. **11**: 504 (July) 1921; A Clinical and Experimental Study of the Free Transplantation of Fascia and Tendon, J. Bone & Joint Surg. **4**: 600 (July) 1922.

3. The necessary number (usually about two) of aponeurotic strips, one-eighth inch wide and 6 inches long, are cut for use as sutures (Fig. 1). These strips are placed in moist gauze while the hernial sac is being ligated and excised. The strips are now threaded through large-eyed Hagedorn needles.

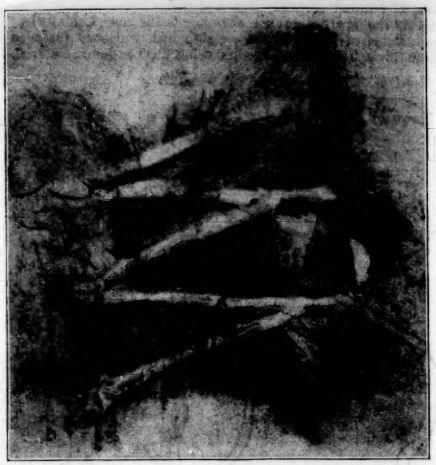


Fig. 3.—Fascial suture at end of thirteen weeks, showing method of insertion. The suture is now a rounded, glistening cord, resembling tendon in gross appearance (Gallie and LeMesurier).

4. The conjoined tendon is sutured to Poupart's ligament by using these aponeurotic strips as sutures. The technic of sewing with such unusual suture material necessitates that there be a strict carrying out of the details (Fig. 2). The major idea is to have good contact between Poupart's ligament, conjoined tendon and the strip of aponeurotic suture (Fig. 3). The hernial repair is made according to the operation which the surgeon prefers to use; such as the Bassini, the Ferguson or the Andrews.

The advantage of this operation lies in the fact that viable suture strips can be obtained quickly and easily within the operative field. It is not necessary to produce a new surgical wound with its opportunities for infection in order to obtain these sutures.

70 East Seventy-Seventh Street.

CONTROL, THROUGH THE NASAL GANGLION, OF EARACHE OF LARYNGEAL ORIGIN *

LOUIS H. CLERF, M.D., PHILADELPHIA

Patients with advanced cancer of the larynx, complaining of pain in one or both ears, are not uncommonly seen at the Bronchoscopic Clinic. Careful examination of the ears reveals no pathologic basis for the otalgia complained of. Because of its association with laryngeal cancer and pain radiating upward along the corresponding side of the neck, we have concluded that, in the presence of a normal ear, it must be of reflex origin from the larynx.

Patients complain bitterly of this distressing symptom, and resort to morphin or codein is necessary to give relief. Remembering the remarkable results obtained by Dr. Greenfield Sluder, who cocainized the nasal ganglion in earache of inflammatory middle disease origin and reflex earache after tonsillectomy, Dr. Chevalier Jackson suggested that this method be tried in these cases of reflex earache of laryngeal origin. Following is a brief synopsis of the records of two of the cases, with the results obtained:

* From the Bronchoscopic Clinic, Jefferson Hospital.

REPORT OF CASES

CASE 1.—A man, aged 44, was referred to the clinic by Dr. William Hitschler, with a provisional diagnosis of cancer of the larynx. The symptoms dated back about six months. For the last two months he had pain in both ears, which interfered with sleep. The diagnosis of cancer was verified by biopsy and, because of the extensive involvement, laryngectomy was advised. This was refused by the patient. The earache became progressively more severe, and was but slightly relieved by morphin. Cocainization of the nasal ganglion was done, with remarkable results. The relief from pain was complete within one-half minute, and did not occur for from eighteen to twenty-four hours, when cocainization was again done. The patient stated that "it acted like magic." He failed to return to the clinic after about two weeks. This was the first case in which our observation was made.

CASE 2.—A man, aged 76, a physician, complained of hoarseness beginning four years before. When examined during July, 1921, there was an ulcerating growth involving the entire left side of the larynx, which was diagnosed by biopsy as cancer. Because of the extensive involvement, operation was contraindicated and radium was advised. This was applied by Dr. W. S. Newcomet. During July, 1923, the patient complained of severe pain in the left ear. This was associated with considerable swelling of the left arytenoid. Examination of the left auditory canal and drum membrane showed no pathologic changes. Cocainization of the left nasal ganglion gave immediate and complete relief. This was repeated every third or fourth day because of the recurrence of the otalgia.

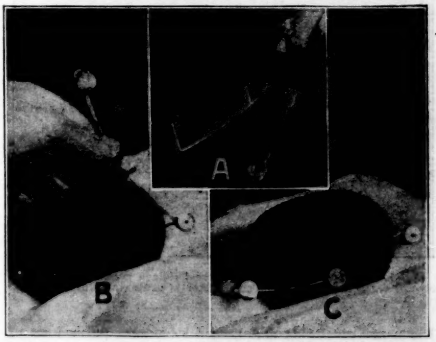
COMMENT

The results obtained by this procedure have been most gratifying. The relief is almost immediate, and is lasting. It is more efficacious than morphin, and is not followed by the ill effects that result from the frequent administration of that narcotic. The simplicity of the procedure makes it readily applicable. We now utilize it in all cases of reflex otalgia of laryngeal origin.

A HEMOSTATIC CLAMP FOR THE RAPID EXCISION OF GOITER

C. E. TENNANT, M.D., DENVER

The greatest problem in the surgical handling of goiter is the operative risk; therefore, the more simple the technic and the shorter the time on the operating table, the less trying will be the patient's experience with shock and hemorrhage. Operations for goiter are now quite common, being performed frequently by surgeons in the smaller centers. Some of these surgeons are successful in picking up the blood supply to the thyroid with hemostats, and tying each separately after the removal of the gland. This, of course,



Hemostatic clamp.

requires considerable time, and some of the vessels may escape notice, these vessels later causing considerable embarrassment. However, this accident is not altogether limited to those who have had little experience with the work, for those who do a great number of cases are not without their mishaps.

A method that will provide positive hemostasis while the gland is being enucleated from the capsule, has been used by Dr. Leonard Freeman for some years, and has also been described by him in the various medical journals.[1] While it is not applicable to all cases, it is used successfully in the majority of them and the time consumed in operation is much shorter, the loss of blood much less and postoperative hemorrhage almost nil.

The method is to use two lengths of German silver wire, known as orthodontia wire, of sufficient length to extend beyond the gland for an inch at either extremity, the ends being curved in order that the wire will not traumatize the surrounding tissue. Rubber bands are used to approximate these wires, after laying one on each side of the gland, one band wrapped around either end of the wire, and one drawn through the gland at its base and held taut by the hemostat.

This method having proved very satisfactory with me, I have had a device made which does away with the rubber bands, and one which is quickly set in place (*A*) in the accompanying illustration. After the gland has been well freed from the adjacent tissues, the wires are swung apart and the middle prong plunged through a bloodless area at the base of the gland midway between the two poles (*B*). One end of the wire is always in position; the other is then engaged in the speed nut, as is the center prong, and all three nuts are quickly turned until the wires are brought up snugly against the gland, complete hemostasis being accomplished in an incredible time (*C*). The gland is then shelled out of the capsule, the margins of which are tightly approximated with an over-and-over stitch, and the clamp removed in the reverse order.

A CASE OF NASAL DIPHTHERIA WITH MISLEADING HISTORY

WILLIAM FRANCIS O'REILLY, M.D., LYNN, MASS.

Epidemiologists regard the epipharynx or postnasal space as the habitat of the germs in most of our diphtheria carriers. We all know the infrequency of culture taking from this recess, the attendant difficulties when the attempt is made, particularly in children, not only in private but also hospital practice, and the persistent positive culture in spite of antitoxin and hygienic measures to remove it.

The same thing can be said of nasal diphtheria, often present without external nares signs and logically diagnosed as a common rhinitis or "cold." How excusable, then, with a traumatic history, as illustrated by the case here reported.

REPORT OF CASE

A. L., a boy, aged 9 years, was in a slight automobile accident, July 20, 1923. The boy returned home with nosebleed, which recurred frequently, with a closing feeling of the nostrils. A week later a physician prescribed a wash to be sprayed into the nose. Next day, when I saw him, he appeared slightly pale. The temperature was 99; the pulse, normal; the respiration, buccal and not increased; the voice, "nasal." There was no excoriation of the external nares. There was a slightly yellow, watery nasal discharge. The throat was normal. Speculum examination revealed a complete stoppage of both nares, which were swollen, with succulent and engorged mucous membrane, particularly on the septal surfaces. Repeated wipings in each introitus showed some exudate deeper in, which after repeated use of cocain and epinephrin, took on the character of a membrane. From each side a small mass of membrane was removed from the septal and turbinate tissue attended by bleeding, and placed in a culture tube for examination. The patient was referred to the family physician for diphtheria antitoxin; a culture was reported positive. Two days later the little sister was taken ill with pharyngeal diphtheria. Uninterrupted recovery of both ensued.

COMMENT

Such a case is unusual. With such a history and the results of general inspection, one is justified in approaching a case of this type with a diagnosis of hematoma or abscess of the nasal septum in the making. Add to these the possibility of an epinephrin spray having been prescribed and used in the nose, and pressure from traumatic swelling with its attendant sloughing, and the mistaken diagnostician does not stand without support. Only extreme patience, and examination under the best conditions, as only an office examination permits, could reveal the true aspect of such a case.

Some teachers of diagnosis have emphasized history, and others stressed physical examination; but all agree to "weigh all evidence with an open mind."

44 South Common Street.

1. Freeman, Leonard: Surg., Gynec. & Obst. **19**: 110 (July) 1914; Colorado Med. **13**: 10 (Jan.) 1916; Ann. Surg. **72**: 161 (Aug.) 1920; Colorado Med. **19**: 144 (July) 1922.

A SIMPLE METHOD OF EXTUBATION

JOHN LESHURE, M.D., NEW YORK

Most intubationists will agree that the extraction of an intubation tube is often more difficult than its introduction, especially in infants and young children whose throats are small.

The short arm of the curved extraction forceps is usually so long that difficulty is experienced with these young patients in elevating the handle sufficiently to grasp the tube. Moreover, the forceps are liable to injure the tissues more or less, especially in the retained tube cases, in which granulations are often present.

In the method that I employ, the child is swathed and gagged as usual without being removed from the bed, the pillow is removed, and a folded towel is placed under the neck to increase extension. The operator's left index finger is applied to the episternal notch, and pressure is made dorsally and upward, causing the tube to rise, when it can be grasped by the index and middle fingers of the right hand used as forceps and withdrawn.

If the tube is too tightly retained to be thus removed, it can be grasped by a pair of long thumb forceps, but I have never found this necessary.

The procedure is so simple that it can be easily taught to a nurse or even an unskilled attendant, and is very valuable in an emergency.

423 Convent avenue.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

EPINEPHRINE (See New and Nonofficial Remedies, 1923, p. 112).

Epinephrine-Wilson.—A brand of epinephrine-N. N. R. Made from the suprarenal gland.

Manufactured by the Wilson Laboratories, Chicago. No U. S. patent or trademark.

Epinephrine Powder-Wilson: Vials containing epinephrine-Wilson, 1 grain.

Epinephrine Solution, 1:1,000-Wilson: A solution containing epinephrine sulphite equivalent to 1 part epinephrine-Wilson in 1,000 parts of physiological solution of sodium chloride without the addition of other preservative.

Neuropathic Constitution.—Nervous parents may have children who have unstable, overirritable and inadequate nervous systems. Such persons have . . . a neuropathic constitution.—Dana.

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SATURDAY, FEBRUARY 23, 1924

FOOD AND SATIETY

The answer to the question, "What constitutes a proper diet?" has undergone a change from time to time in harmony with the growth of knowledge regarding nutrition. The physician has been concerned since early days with the use of food not merely to sustain life but also as a method of promoting health. Thus, Libby[1] reminds us that the hippocratic book "On Ancient Medicine," which ingeniously traces the origin of the medical art to the practical study of diet by man from the remotest past, suggests to the physician that advances are still to be made by continuing the study with full knowledge of what has already been achieved. "Wherefore those who devote themselves to gymnastics and training are always making some new discovery by pursuing the same line of inquiry, where, by eating and drinking certain things, they improve and grow stronger than they were." So even unto this day the therapeutic problem expressed by the inquiry, "What remedy?" may often resolve itself into the query, "Which food?"

At present, an adequate diet is assumed to involve a sufficient intake of energy-yielding food products. These must include a certain amount of protein—a feature that has been the subject of not a little discussion in recent years from the standpoint of the quantity that is desirable. A diet should include also a modicum of inorganic components, as a mixture of natural foods almost inevitably does; and there is need of such selection as will insure a sufficiency of the essential vitamins or as yet somewhat undefined properties of certain foods that promote nutrition. To what extent there should be inclusion of indigestible residues, such as the cellulose-containing parts of plants afford, is debatable; for the fact that the use of "roughage" as a dietotherapeutic measure is so widespread does not necessarily mean that it is indispensable if the diet is otherwise appropriate and the food habits of the individual are satisfactory.

In recent times, Kestner[2] of Hamburg has repeatedly voiced the belief that the sense of satiety plays an important and often determining part in the evaluation of a diet from the broadest physiologic standpoint. The performance of eating is not dictated, in every-day experience, by intentional considerations of chemistry or physiology, but for the most part by certain sensations which impel us to take nutriment. So long as the stomach is fairly well filled and secretion is going on in it, we are not aware of the organ. As soon as the stomach is emptied and secretion ceases, the conditions are presented for the sensation of hunger. It has been demonstrated repeatedly in recent years that this is attended with muscular contractions that are the concomitant, if they are not the cause, of the hunger pangs. Of these contractile phenomena the person involved will have no cognizance; but the feelings that attend them have always led mankind to seek the relief that the intake of food affords.

The desire to eat is a compelling feature of human experience. The antidote is found in the development of a feeling of satiety. In attempting to satisfy the desire to eat, to avert the feeling of hunger, calories, proteins, salts and vitamins vanish into the background of human concern; and yet man has learned by experience that hunger is averted longest by the ingestion of certain articles of diet. In popular parlance, we hear that one food "stays by" us better than another. Scientific investigation has demonstrated, even in the experiments of William Beaumont on Alexis St. Martin, that some foods make greater demands than others on the digestive organs. They may tarry a shorter or longer period in the stomach; they may call forth a greater or less amount of secretion. A "full" stomach tends to empty more slowly, and thus the renewal of the "hunger contractions" and the desire for food is delayed. Protein foods, as a rule, require an abundance of secretion, and their preliminary products of digestion pass through the pylorus at a rate much slower than that exhibited by food rich in carbohydrates. A meal of bread has ordinarily, for the most part, passed the pylorus within an hour and a half; the inclusion of meat prolongs the time two or three fold. The degree to which foods induce a feeling of satiety depends in large measure on the rate at which they leave the stomach. Judged by this criterion, meats, in particular, occupy a foremost position, followed by fats and such mixtures of protein and fat as cheese represents. The cereals and starchy foods stand at the other end of the list, since they do not remain long in the stomach. Obviously—and experience confirms this—cereals and chemically similar foods must be eaten frequently and liberally to equal the "staying" qualities of the products that belong to a different category, so far as satiety is concerned.

1. Libby, Walter: The History of Medicine, Houghton, Mifflin Company, Boston.

2. Kestner, O.: Der Sättigungswert der Nahrung, Deutsch. med. Wchnschr., 1919, No. 10.

THE RETICULO-ENDOTHELIAL SYSTEM

The term reticulo-endothelial system was coined by Aschoff to cover a cell group with endothelial and reticular attributes, and a certain common behavior toward dyestuffs. The concept of a true organ having a function but no structure, tucked, seemingly at random, in the crevices of alien tissues—not unlike the cosmopolitan Gipsies, who have no country of their own but are yet recognized as one people howsoever they wander—has steadily gained experimental justification.

In 1909, Goldman,[1] using pyrrol blue for vital staining, found cells containing blue granules in the portal capillary cells of the liver, in the vein endothelium and lymph sinuses of the splenic pulp, in sinuses of lymph glands, a few in the bone marrow, individual ones scattered through all connective tissues except in the central nervous system, and inconstantly some in the lungs. Aschoff and Kiyono,[2] soon after, found lithium carmin in the same locations after injection, and subsequent workers have found injections of India ink, manganese dioxid particles, and colloidal gold, silver, and bismuth preparations in the same cells. Recently, Eppinger [3] has studied the disposition of saccharated iron in the body, and Evans and Scott [4] have tested with dyes of many varieties the response of this cell group.

The reticulo-endothelial system, for this blanket expression seems to coincide most closely with our ignorance as well as knowledge of this organ, includes a number of morphologically distinct cell types. The orthodox fibroblast and endothelial cell, both being specialized for a kind of secretion, are hardly within the fold, except as they are transmutable into other forms. A cell discovered by Maximow in 1902 by its response during tissue formation and its staining while still alive in 1:10,000 neutral red was called by him first a resting wandering cell (in distinction to the active wandering state in the blood stream) and later, following Ranvier, a clasmatocyte, by which name it is now most commonly known in this country. The adventitial cell of Marchand and the rhagiocrine cell of Renant are other synonyms, while Aschoff's histiocyte is used to include the tissue clasmatocytes and blood monocytes—which are themselves probably identical. The clasmatocyte differs from a fibroblast in that its nucleus is smaller and richer in chromatin, the cell margin is oval or irregular but always definite, the cytoplasm contains chromophilic granules and vacuoles which segregate and store particulate matter, the cell is markedly phagocytic, and finally in that the whole cell is given a slow locomotion by shifting films formed in the periphery of the cytoplasm. Clasmatocytes are present in all the connective tissues of the body.

1. Goldman: Die äussere und innere Sekretion des gesunden Organismus in Lichte der "Vitalen Färbung," Tübingen, 1909.
2. Aschoff and Kiyono: Folia hematol. **15**: 383, 1913.
3. Eppinger, H.: Wiener. klin. Wchnschr. **35**: 333 (April 13) 1922.
4. Evans and Scott: Contributions to Embryology **10**: 1, 1921.

The reticular cell, closely related to the fibroblast and the clasmatocyte, forms the framework of lymphatic reticulum, especially about the splenic and lymphatic sinuses. It generates long, branching fibers, which are chemically identical with the white connective fibers but which remain within the cell with the cytoplasm stretched along them. Though these are phagocytic under sufficient provocation, they never equal the clasmatocyte or even endothelial cell in this activity, but are, as the structure indicates, essentially supporting structures.

The majority of endothelial cells lining the serous cavities and blood vessels do not ordinarily take up vital dyes or become actively phagocytic even when abnormal conditions obtain, but some of these cells, especially those lining the spleen and liver venules, though varying in location in different animals, are normally prepared for phagocytosis.

Though these four varieties of cell (fibroblasts, endothelial cells, clasmatocytes and reticular cells) are distinguished, there is much reason for believing that, in adult life, and surely in embryonic, they are largely transmutable into one another and also into some of the blood cells; in fact, considering the recently demonstrated change of smooth muscle into striped, of large mononuclears into fibroblasts,[5] and these in turn to osteoblasts or other cells, it seems not improbable that all mesenchymal tissues retain through life their totipotentiality. The clasmatocyte forms from reticulum and probably also from endothelium, and may revert to them or form giant cells or fibroblasts; the reticular cell can become a fibroblast, continually forms lymphocytes (probably by way of an intermediate lymphoblast), and, though this is still actively debated, may become an endothelial cell; and, finally, the endothelial cell gives rise in turn to the other cell types and, probably, to the red cells and monocytes of the blood stream, so that it seems wise at present to disregard their differences and consider the function of the reticulo-endothelial system as a whole. And a caution must be added: In nearly every species, the reticulo-endothelial cells are differently distributed about the body, so that results of experimental procedures cannot be carried over indiscriminately; and even in one animal, extirpation of a spleen or liver removes only a fraction of the total reticulo-endothelial cells, which loss may be compensated for by changes in the residual ones.

The known activities of this system center about phagocytosis, and this property is used as a functional test. Injected particles are at once bound by the active reticulo-endothelial cells, and therefore appear but slowly in the urine, whereas, when these cells are not active, the urine soon contains the foreign substance. Kirsch has used this test. Of more dubious value is the so-called blocking of these cells by overloading them

5. Carrel, Alexis; and Ebeling, A. H.: J. Exper. Med. **36**: 365 (Oct.) 1922.

with one kind of particle to the exclusion of others. If some substance, as a vaccine which cannot be traced with the microscope, is administered and followed by some easily detected material, as carmin, a failure of the cells to take up carmin indicates that they have taken up the vaccine to saturation.[6] Such tests prove the emergency function of the system as a protective mechanism, since bacteria and animal parasites to a notable extent go the way of inanimate particles. Long championed by Metchnikoff, this activity has recently been emphasized again by Gay,[7] who finds a close parallelism in rabbits between the resistance to local streptococcic infection and the number of clasmatocytes in the infected cavities or subcutaneous tissues.

More regularly, these cells occupy themselves with the physiologic destruction of blood cells and subsequent metabolism of iron and pigment. In man, about one thirtieth of the total blood is destroyed each day,[8] largely by the action of the reticulo-endothelial cells in taking up injured erythrocytes. The formation of bile pigments from hemoglobin is their work and proceeds in all parts of the body, as demonstrated in hematomas or when the liver[9] is excluded from the circulation. The pigments are largely taken from the blood by the marrow and reutilized in hematopoiesis; but the iron accumulates as hemosiderin (probably ferric oxid) in these cells, which finally, by mitosis, leave their mooring and carry the precious cargo of ore to the marrow.[10] It is probable that inorganic (unmasked) iron is always transported intracellularly.

Cholesterol injected into the blood stream is taken up by reticulo-endothelial cells, which then show a foamy cytoplasm containing numerous double refractive granules. Such cells, called by Aschoff pseudoxanthoma cells, appear with disturbed fat metabolism, as in lipemia, diabetes, icterus, xanthal asthma and chronic cholecystitis, and suggest a normal part played by the reticulo-endothelial system in fat metabolism.

Another possible function of this system is the production of immune bodies, for a number of workers offer evidence that these substances are formed by the cells that take up antigen. The recently observed local Wassermann reaction is probably a case in point, for local clasmatocytes certainly destroy spirochetes and might, therefore, be a source of the corresponding antibodies.

Medical discoveries are said to pass through three stages—the optimistic, the pessimistic and the realistic—and we are now in the first as regards the system in question. Thus, clinicians (Eppinger) are explaining most diseases of the blood in terms of the reticulo-endothelial system: Hemolytic icterus appears as a deranged function of the splenic cells with overdestruction of erythrocytes; pernicious anemia, as an overactivity of all the reticulo-endothelial cells with a somewhat similar result; aplastic anemia, as a hypofunction of these cells which here fail to retain iron in the body but permit it to leave in the feces and urine, the reverse of which is hemochromatosis, characterized by overretention of iron in the same cells. Similarly, polycythemia is supposed to result from another type of hypofunction with failure to destroy red cells; cirrhosis from a change of Kupffer cells and clasmatocytes to fibroblasts; and so forth. The subject is a stimulating one, and if theory is well backed by experiment, new light will be thrown on the physiopathology of the hemic system.

6. Paschkis, K.: Wien. klin. Wchnschr. **35**: 839 (Oct. 26) 1922.
7. Gay, F. P., and Morrison, L. F.: J. Infect. Dis. **33**: 338, 1923.
8. Roux: Physiol. Rev. **3**: 35, 1923.
9. McNee has shown that the Kupffer cells and not the liver parenchyma manufacture bile pigments.
10. Jaffé, R. H.: Wien. klin. Wchnschr. **35**: 595 (July 6) 1922.

ALTERATIVES AND VITAMINS

What is the real function of vitamins in the body? This question has been asked again and again. Its formulation does not imply doubt as to the existence or the physiologic importance of such a group of food factors. Fats, carbohydrates and proteins—the long familiar nutrients—supply energy and structural components to the organism. Some of the functions of the inorganic ingredients of the diet are recognized. But in the case of the vitamins the analogies that present themselves have not yet attained the dignity of being even tenable hypotheses. Some persons are of the opinion that the vitamins supply the body with certain necessary chemical units it is unable to manufacture. Others regard the vitamins in the light of excitants in that they exert a stimulating influence on the various activities of the body. But all this is intelligent guesswork, nothing more. The science of nutrition must keep an open mind and give an unbiased hearing to any reasonable conjecture that attempts to define the scope and purpose of vitamin functions.

The expression "alterative" has gone out of fashion in medicine, and properly so. The physician of today aims to define his terms with the highest attainable specificity, and to formulate his therapy in clearly conceived directions. By alteratives were meant those drugs which alter and improve any morbid condition of the body without producing any evident external sign. If we give a dose of purgative medicine, we see that it is doing something, Sir Lauder Brunton was wont to tell his students a quarter of a century ago. If we give an emetic, he continued, we also see that it is doing something, and we do not wonder so much that the patient recovers under the influence of such drugs. But if to men suffering, let us say, from rheumatism, we give potassium iodid continuously, we do not see that the iodid is doing anything. It is not causing any greater evacuation of the bowels, it is not causing vomiting, it is not causing diuresis, and yet the patient's joints are gradually getting soft and more flexible under its use. There is no very evident external sign of the action of the drug, and yet it is making the

patient better; so that those drugs which have such an effect were known as alteratives.

Are the vitamins alteratives? Do they promote physiologic well-being in nonspecific ways, as certain drugs were supposed to do? If so, it might be expected that the use of long valued alteratives would exert a favorable influence in conditions of avitaminosis. Small doses of arsenic are believed to promote appetite and to facilitate growth by favoring the anabolic in contrast to the catabolic or oxidative phases of metabolism. Arsenic has been employed as an alterative in disorders of the nervous system and particularly the skin, to mention only a few of the many therapeutic uses to which this potent drug has been put. Recently, Suda [1] has attempted to learn whether the deleterious effects of deficiency of vitamins in the diet could be averted in whole or in part by administration of arsenic in doses demonstrated to be below the threshold of apparent detrimental potency. When the drug was administered as arsenous oxid to animals on an adequate diet, the outcome showed it to be harmless, if not actually beneficial. When the tests were made on animals subsisting on food almost devoid of vitamins, the nutritive decline was not averted in any degree. One cannot avoid the conclusion that, however "stimulating" or "alterative" arsenic may be within the limits of intake that exclude toxicity, it cannot compensate in any degree for the lack of those promoters of nutrition termed vitamins.

Current Comment

CHILD MORTALITY IN PHYSICIANS' FAMILIES

It has been said that a prophet is without honor in his own land. Shall it be told that a physician is without professional resourcefulness in his own home? Some recent statistics seem at least to imply that the family of a physician does not profit notably by his ministrations or admonitions. According to the figures assembled by Lennox,[2] families in which the father is a physician do not have a lower mortality rate among children than families in other professional or in business groups. Miscarriage rates for the wives of physicians are high, probably because reports from other occupational groups are falsely low. Fortunately, it appears that the education of parents is not a hindrance to hygienic progress; for the more highly educated parents in Lennox's groups reported a larger proportion of living children who are in robust health. Of course, the charge of indifference to their own welfare is not a new one to the men in medicine. They are often notoriously unconcerned about their own health. The physician who is meticulously painstaking with his patients may be persistently indifferent to his own ailments. Medical gatherings and meeting places are all too often conducted without regard to the rules of hygiene. Preaching and practice are not always found exemplified in the same person. However, the average physician is not unintelligent, and statistics are not always infallible.

1. Suda, G.: Kann die avitaminöse Wachstumshemmung durch anorganische Substanzen kompensiert werden? Biochem. Ztschr. **138**: 269 (June 18) 1923.
2. Lennox, W. G.: Child Mortality with Reference to the Higher Education of Parents, Am. J. Hyg. **4**: 52 (Jan.) 1924.

HEART INVOLVEMENT IN RHEUMATIC FEVER

If it is, indeed, the frequent implication of the heart that makes acute rheumatism one of the most formidable diseases in temperate climates, the intensive study of its cardiac features is eminently desirable. The long used expression "rheumatism of the heart" is significant of the early recognition of the association of rheumatic fever with the development of heart disease. The methods of observation that were available to clinicians of a former generation were, unfortunately, inadequate to disclose some of the more minute and earlier cardiac changes in any form of heart involvement. The stethoscope tells only part of the story, and the older methods of physical diagnosis are scarcely adequate to detect incipient changes in the workings of the internal organs. The pathology of the necropsy room has obvious limitations, particularly when the problems of diagnosis and prognosis are concerned. Consequently, the introduction of more subtle procedures that can be employed without detriment to the patient during life has long been awaited. The electrocardiographic method has been comparatively slow in finding a clinical welcome, partly because it is difficult of application so that it will not appeal to a novice; partly, also, because it can at best tell only part of the story of cardiac conditions, notably such as involve the conduction changes in the heart; and in large measure because too much was expected at first from a complicated technic that requires careful mastery by an expert and intelligent interpretation of the evidences that it affords. The skilful use of the electrocardiograph at the Hospital of the Rockefeller Institute for Medical Research, New York, has furnished indications of the myocardial involvement in nearly all cases of rheumatic fever. The observations of Cohn and Swift [1] there show that the duration of auriculoventricular conduction may be increased, though not always, and usually not to the degree of causing heart block. There are also changes in the ventricular complex of the electrocardiogram, while numerous irregularities in cardiac rhythm may occur. These signs, as the New York clinicians clearly point out, express merely derangement of the heart; they are by no means specific for rheumatic fever. The point of importance is that it has become possible during the course of the disease to know whether the heart is involved even in a seemingly minor way. The possible clinical usefulness of such cardiographic information will depend on the generalizations that only a large accumulation of data from individual cases can afford. This means much laborious and painstaking effort on the part of qualified experts. It should be encouraged and commended, with the additional reminder that most real progress in any field of endeavor is slow and costly in terms of human effort.

1. Cohn, A. E., and Swift, H. F.: Electrocardiographic Evidence of Myocardial Involvement in Rheumatic Fever, J. Exper. Med. **39**: 1 (Jan. 1) 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Chemistry Lectures.—The University of Arizona, Tucson, announces a series of ten lectures on the chemistry of simple sugars and saccharinic acids by John W. E. Glattfeld, assistant professor of chemistry of the University of Chicago.

CALIFORNIA

Unlicensed Midwives.—To reduce the mortality of mothers and infants in California, a campaign by the state boards of health and medical examiners against unlicensed midwives is being conducted. Many arrests have been made. Qualified midwives are licensed and allowed to practice.

"Gland Specialist" Arrested.—According to reports, Dr. Francis E. Elmer has been arrested in San Francisco on a charge of practicing medicine without a license. He is alleged to have performed several "gland operations" at his "luxurious temple of rejuvenation." The "doctor" graduated from a diploma mill, the Maryland College of Eclectic Medicine and Surgery, Baltimore.

Summer Graduate Course.—A special summer graduate course for physicians will be given at Stanford University Medical School, San Francisco, from June 15 to September 1. There will be an opportunity to take special courses in clinical and laboratory work. The minimum period of attendance will be four weeks, and applications giving an outline of the medical experience of applicants, should be addressed to the dean.

Personal.—Dr. George Roy Stevenson, San Diego, has been elected county physician and medical director of the San Diego County General Hospital succeeding the late Dr. Otto G. Wicherski.——Dr. Alson A. Shufelt has been elected president of the Santa Clara County Medical Luncheon Club.——Dr. Francis M. Pottenger, Monrovia, was the principal speaker at a meeting of the Tuberculosis Society of St. Louis, Mo., February 19.

World War Memorial.—January 23, a tablet was unveiled in the Letterman General Hospital, San Francisco, in commemoriation of the officers, nurses and enlisted men who died in the World War. Troops from the Presidio and Fort Winfield Scott attended the ceremony. This tablet is one of four which have been unveiled in various places, the others being at Carlisle Barracks, Pa.; Fitzsimmons General Hospital, Denver, and the Walter Reed General Hospital, Washington, D. C.

COLORADO

Society News.—The Mid-West Section of the American Laryngological, Rhinological and Otological Society met in Denver, February 1-2, under the chairmanship of Dr. Thomas E. Carmody. Dr. Hanau W. Loeb, St. Louis, president of the national society; Dr. Albert C. Broders, Mayo Clinic, Rochester, Minn.; Dr. James A. Patterson, Colorado Springs, and Dr. Chester H. Bowers, Los Angeles, were among the out-of-town speakers.

FLORIDA

Organizations Promote Health Education.—At a meeting of state organizations for the promotion of health education in public schools, in Jacksonville, January 26, a state health education council was formed. The council will coordinate the health education work of organizations in the state to promote health education. A speakers' bureau was established to furnish trained lecturers on health subjects. The state teachers' training institutions will be asked to add to their curriculum, for both winter and summer sessions, a course of study in health education. Organizations represented were: the state medical association, the state board of health, the bureau of child welfare, state department of education, the American Red Cross, Florida State College for Women, home economics department, modern health crusade, the University of Florida, the state and county dental societies, the state federation of women's clubs and the state parent-teachers association.

ILLINOIS

Smallpox.—With nearly thirty cases of smallpox in the Chicago Isolation Hospital, employers have been warned to urge vaccination among employees. Reports of outbreaks come from Gary and Hammond, Ind., Oak Park and other nearby towns.

Birth Rate Declines in 1923.—Birth registration fell off from 135,425 in 1922 to 131,918 in 1923, giving rates per 1,000 population of 20.1 and 19.4, respectively. The decline amounted to 12 per 10,000 population in Chicago while for the remainder of the state it amounted to only 2 per 10,000. Apparently the registration is much more complete than ever before.

Personal.—Dr. Robert C. Cook, assistant pediatrician, division of child hygiene and public health nursing, state department of public health, has been appointed acting chief of the division to succeed Dr. Clarence W. East, who resigned February 1.——Dr. Ray Mercer, Quincy, has been appointed commanding officer of the new medical unit of the One Hundred and Third Infantry, Illinois National Guard.

Health Association Will Make Surveys.—Word has been received by state director of health that the American Child Health Association will conduct surveys, during the present year, in Cicero, Decatur, East St. Louis, Springfield and Rockford. The object of the surveys is to secure data which will show what measures are being applied in child health service and which of these offer the most promising field for the association. The surveys in Illinois are a part of a general program reaching into thirty-one states.

Medical Practice Act Not Health Department Affair.—Dr. Isaac D. Rawlings, state director of public health, announces that a considerable volume of mail, relating in one way or another to the operation of the medical practice act, reaches his office weekly. He calls attention to the fact that all matters of licensure of physicians, midwives, nurses and all other professions or callings for which state licenses are required, are handled by the state department of registration and education. Legal or other procedures relative to these matters come under the jurisdiction of the department of registration and education.

Hospital News.—Dr. George W. Campbell will erect a twenty-five bed hospital at Flora in the near future.——The South Suburban Hospital, Morgan Park, has been incorporated for the purpose of establishing a large hospital for the Morgan Park and Beverly Hills district. The site has not been announced.——The Community Hospital, Geneva, has issued bonds for $100,000 to erect a new building.——Dr. James T. Black, Herrin, and Dr. Loren B. Ralls, Ellington, Mo., have purchased the Emma Jones Hospital at Marion and will install new equipment.——Plans have been made for the erection of a $90,000 addition to St. Mary's Hospital, Streator.——The Berwyn Medical Unit, Berwyn, of which Dr. Arthur MacNeal is in charge, is having plans drawn for a $75,000 addition.——A $60,000 addition will be erected by the Holden Hospital, Carbondale, about April 1.——Plans have been made for the erection of a 125 bed addition to the old Globe Hospital, Freeport. This institution recently was taken over by the Evangelical Lutheran Church.——It is proposed to erect a $60,000 addition to the Municipal Tuberculosis Hospital, Peoria, in the near future.——The Memorial Methodist Hospital, Mattoon, has been bequeathed $5,000 by the will of Lewis L. Lehman.

Death Rate Up for 1923.—Provisional figures of the state department of public health, which are practically complete, indicate a death rate of 12 per 1,000 population for 1923, which is appreciably higher than for 1922 (11.3) but lower than for any other year except 1921 (11.1). Chicago, for the third successive time, reported a rate lower than the remainder of the state; the difference this time is greater than before. The increase in mortality in Chicago during 1923 amounted to 5 per 10,000 people while that for the down-state amounted to 9. Pneumonia, influenza and tuberculosis were, in the order named, outstanding among the causes of death for which increased mortality was reported. Deaths from pneumonia rose 1,226 above those of the year before, while influenza and tuberculosis were credited with increases of 851 and 849, respectively. It is interesting to note that in Chicago, where intensive anti-tuberculosis work is done on a more extensive scale, the tuberculosis mortality increased at the average rate of two deaths per week, while that for the remainder of the state rose at the rate of two per day. Fatal automobile accidents fell slightly in Chicago but increased down-state. Sharp increases in deaths from measles and whooping cough were reported, with slight rises in mortality from typhoid fever,

cerebrospinal fever and syphilis. Definite declines were reported in deaths from diphtheria and scarlet fever.

Chicago

Philanthropy.—Part of the $600,000 estate of Mrs. Clara A. Abbott, widow of the founder of the Abbott Laboratories, has been left to "advance the causes of medical, surgical and chemical charities," according to the terms of her will.

Tuberculosis Exhibit.—The Chicago Tuberculosis Institute is devoting much space in windows downtown to exhibits, which include automatic stereopticon pictures, moving pictures, posters, booklets, and material illustrating various phases of the institute's program.

Hospital News.—Plans have been made for the erection of a $500,000 addition to Mount Sinai Hospital, California Avenue.——The new Salvation Army Hospital, for women, North Crawford Avenue, will be formally opened, April 15. ——Plans have been drawn for the new Illinois Masonic Hospital which will be erected at a cost of $250,000 on Wellington Street. Most of the money has already been subscribed following a drive for funds.——The city council health department has appointed a committee to consider the remodeling of the House of Correction Hospital, as a home for the free treatment of drug addicts. The hospital is not in use at the present time.

Personal.—Dr. Budd C. Corbus, Chicago, spoke on "Diathermy in Urology" before the St. Louis Medical Society, February 12.——Dr. Charles S. Bacon, head of the department of obstetrics and gynecology at the University of Illinois Medical School, has been appointed chief of staff of the new Salvation Army Hospital for women.——Dr. Dean Lewis was the guest of honor of the Peoria Medical Society in that city, February 5. He spoke on "General Infections and Their Treatment."——On February 12, several hundred Chicago physicians attended a dinner in honor of Dr. James B. Herrick. Dr. Ludvig Hektoen presided, and addresses were read on the various aspects of Dr. Herrick's career.

Schireson's Record.—According to reports, the state department of registration and education has been petitioned to revoke the Illinois license of Dr. Henry J. Schireson, whose Connecticut license was revoked January 31 (THE JOURNAL, February 9, p. 477). Schireson's record alone, it is contended, is sufficient to warrant revocation of his license, investigations showing that his medical education consisted of one year in the Maryland Medical College, Baltimore, in 1906 (college now out of existence). The petition states that in 1913 he was arrested in Pittsburgh and sentenced to ten months in the Alleghany County workhouse for conducting an illegal clinic. In 1915 he was arraigned in New York, and was accused by the New York County Medical Society of owning a string of medical advertising offices throughout the country. The same year Schireson opened an office in Utica, N. Y., it is alleged, and an office in Schenectady, N. Y. He formerly operated at 21 East Van Buren Street, Chicago, under the name of the Schirepost Medical Offices. According to our records, Schireson was licensed to practice in Massachusetts in 1906; in Vermont in 1909 and in New Jersey and Pennsylvania in 1910. He obtained a license to practice in Michigan through reciprocity with Vermont, through which channel it is alleged he also received his Illinois permit. Reports of irregularities in his practice come from Cleveland (in connection with the European Medical Institute), Scranton, Pa., New Haven, Conn., and Detroit.

INDIANA

Measles.—Several rural schools of Blackford County have closed on account of an epidemic of measles.

Military Committee.—Drs. Joseph R. Eastman, Rollin G. Hendricks, LaRue D. Carter and Carl Habich of Indianapolis; Walter M. Stout, Newcastle; John S. Robison, Winchester, and Charles N. Combs, Terre Haute, have been appointed on the military committee of the Indiana State Medical Association by Dr. Samuel E. Earp, president, to cooperate in that state with the Surgeon-General of the Army in organizing a reserve corps.

Hygeia.—At a special meeting of the Clay County Medical Society at Brazil, February 15, Dr. Samuel E. Earp, president of the state medical association, urged physicians to place a copy of *Hygeia* in every library, club and public school and in their own reception rooms. Dr. James H. Stygall, executive secretary of the bureau of publicity, Indianapolis, stated that *Hygeia* was the greatest aid in showing the lay public the fallacy of patronizing the cults.

IOWA

Society News.—The annual meeting of the Iowa Tuberculosis Association, the Iowa Trudeau Society, the Iowa Sanatorium Association, the state housing bureau and several county medical societies was held in Dubuque, February 7-8. Dr. James S. Pritchard, Battle Creek, Mich., president of the Mississippi Valley Conference on Tuberculosis, was the principal speaker. Dr. John H. Peck, Des Moines, was elected president of the tuberculosis association, which will meet in Des Moines next year.

KENTUCKY

Society News.—At the first annual banquet of the Jefferson County Medical Society in Louisville, February 4, Drs. John W. Barksdale and George W. F. Rembert, Jr., of Jackson, Miss., gave addresses. Dr. Joshua B. Lukins, president of the county society, appointed a committee to plan a memorial for Dr. Lewis S. McMurtry, former president of the society, and other physicians who have died during the last few years.

LOUISIANA

Dances Near Hospital Forbidden.—The city commission of New Orleans proposes to stop dances within a block of infirmaries, hospitals and sanatoriums, an ordinance to that effect having been introduced, February 6.

Physician's License Restored.—A letter from the secretary of the Louisiana State Board of Medical Examiners states that the license of Dr. Eustus Daniel Robbins has been restored. Dr. Robbins' license was revoked in 1917 on conviction of felony.

Medical Society Election.—The Lafourche Valley Medical Society held its quarterly meeting, February 12. Dr. Hugh P. St. Martin, Houma, was elected president, Dr. Henry C. Dansereau, Labadieville, vice president, and Dr. Hubert S. Smith, Thibodaux, secretary.

New Building at Tulane.—The new science building at Tulane University, New Orleans, was formally opened, February 21. This building, the first constructed on the Tulane campus for years, contains experimental laboratories for the natural and medical sciences.

Insulin Courses Popular.—Two hundred and forty-six physicians from Mississippi, Texas, Alabama, Florida, Arkansas and Louisiana have attended six courses of instruction in methods of using insulin offered at Touro Infirmary during the last year. Two more courses will be given in April, and one, March 17-20, for negro physicians. One half of the fund for this purpose has been utilized.

Hospital News.—Dr. Benjamin F. Gallant, recently superintendent of St. Luke's Private Hospital, New Orleans, and former head of the Charity Hospital, has purchased the "Inn by the Sea" at Henderson Point and 15 acres of ground (including a golf course) for $30,000. He will establish a convalescent hospital. There will be accommodation for about 150 patients. Two modern brick buildings will be erected at once.——Additional buildings to meet the increased demands will be erected at the Flint-Goodrich Hospital for Negroes, New Orleans, in the near future.

MARYLAND

Hospital News.—The new wing of the Maryland General Hospital, formerly the nurses' home, was opened, February 8. Reconstruction and renovation of the wing have been in progress for the last four months. It contains twenty-eight private and ward rooms with a capacity for seventy patients.

Health Center Organized.—A public health center for the second district of Baltimore County was organized recently at the Randallstown High School. Twelve women, representatives of towns in the district, and the chairman, John L. Alcock, constitute the council. A committee has been appointed to secure permanent quarters; meanwhile the center will be conducted at the high school.

Hospital at Perryville to Be Enlarged.—Following an inspection of Federal Park, Perryville, by Frank P. Hines, Director General of the Veterans' Bureau, Washington, D. C.; Col. D. John Markey, state commander of the American Legion, and Dr. William F. Lorenez of Madison, Wis., professor of psychiatry, the construction of a $1,000,000 addition to the Veterans' Hospital at Perryville was decided on. The new building will take care of psychoneurotic patients in Maryland, Virginia, West Virginia and Pennsylvania. In the present structure 500 patients can be accommodated and the addition will provide for 500 additional

patients. Water, sewage and power facilities will permit the extension of the hospital to five times its present size.

Society News.—The Book and Journal Club of the Medical and Chirurgical Faculty of Maryland was held at Osler Hall, February 19. The meeting was opened with a paper by Dr. Zimmerman and discussed by Dr. William H. Welch and Dr. Albert Keidel. Following these discussions, Ales Hrdlicka, anthropologist of the National Museum, and Prof. Paul Haup, professor of Semitic languages at the Johns Hopkins University, addressed the members of the club.——The regular monthly meeting of the Baltimore County Medical Association was held, February 20, at the Medical and Chirurgical Faculty Building, Baltimore. The program was as follows: Address of the retiring president, Dr. Albert L. Wilkinson, "Shall Baltimore County have a Full-time Health Officer?" A discussion was introduced by Mr. Edward B. Passano, president of the Baltimore County Public Health Association.

MASSACHUSETTS

Board of Health Elections.—Dr. John J. Egan was elected chairman of the Gloucester Board of Health, recently; Dr. Philip P. Moore was appointed school physician, and Dr. George S. Rust, physician to the board.——Dr. Edward H. Trowbridge has been appointed a member of the legislative committee and Dr. Thomas F. Kenney, director of public health and school hygiene, Worcester, was elected chairman of the membership committee at the annual meeting of the Massachusetts Board of Health in Boston, January 24.

Bill to Amend State Medical Board Law.—A bill to make members of medical college faculties and teachers of medicine eligible for appointment to the state board of registration in medicine, without regard to membership in medical societies, was filed in the legislature, February 2, on petition of Dr. Charles F. Painter of Boston. Under the present law the governor may not select a physician who is an instructor in any medical college or university, and he is barred from appointing more than three of the seven members of the board from any chartered medical society.

New England Health School.—The New England Health Institute will be held in Boston, May 5-10, under the auspices of the U. S. Public Health Service, the state health departments of New England, Yale and Harvard schools of public health and the departments of biology and public health of the Massachusetts Institute of Technology and Simmons College. There will be thirteen sections with chairmen as follows:

Venereal Disease.....Dr. Joseph E. Kerney, Providence, R. I.
Tuberculosis.....Dr. Robert B. Kerr, Manchester, N. H.
Foods and Food Control.....Dr. E. Monroe Bailey, New Haven, Conn.
Social Work.....Mr. Robert Kelso, Boston
Preventable Diseases.....Dr. Francis X. Mahoney, Boston
Mental Hygiene.....Dr. Douglas A. Thom, Boston
Nutrition.....Miss Lombard, Boston
Health Education.....Miss Bragg, Newton
Child Hygiene.....Dr. Richard M. Smith, Boston
Industrial Hygiene and Accident Prevention.....
.....Dr. Halstead G. Murray, Framingham
Sanitation.....Prof. I. V. Hiscock, New Haven, Conn.
Public Health Nursing.....Miss M. Stack, Hartford, Conn.
Health Administration.....Dr. Thomas Tetreau, Portland, Maine

For further information, apply to Dr. Merrill Champion, chairman of the program committee, Room 545, State House, Boston.

MICHIGAN

Cancer Week in Detroit.—"Cancer Week" was observed in Detroit under the auspices of the Wayne County Medical Society and the National Society for the Control of Cancer, February 16-21. Dr. Albert J. Ochsner, professor of surgery at the University of Illinois Medical School, Chicago, addressed several of the meetings.

Personal.—The Detroit Kennel Club has awarded a medal to Dr. R. A. Newman in recognition of his heroism in rescuing a dog trapped on the ice recently.——Dr. Donald M. Morrill, formerly assistant director of the University Hospital, Ann Arbor, has been appointed director of the Blodgett Memorial Hospital, Grand Rapids, succeeding Dr. Claude W. Munger who goes to the Grasslands Hospital, Westchester County, Valhalla, N. Y.——Dr. Henry M. Joy, Calumet, and Dr. Alfred W. Hornbogen, Marquette, have been appointed members of the state board of registration in medicine. Dr. Hornbogen succeeds Dr. Duncan A. Cameron, Alpena.——Dr. David Levy, Detroit, addressed the Bay County Medical Society, January 31, at Bay City, on "Scarlet Fever, with Special Reference to Its Treatment with Serum." Dr. Mabel Elliott, Benton Harbor, recently returned from Greece, also gave an address.

MISSOURI

State Amendment Endorsed.—The executive committee of the Missouri State Medical Society at a meeting in St. Louis, recently, unanimously endorsed Amendment No. 5 of the state constitution, to be voted on in special election, February 26. The amendment reads as follows: "The General Assembly shall provide by law for the safeguarding and promotion of the public health."

Report on Rehabilitation of Cripples.—According to the state supervisor's report to the board of vocational education, there have been 444 cases registered since May 16, 1921, when Missouri embarked on a policy of reclaiming victims of accident and disease. From this number, 256 cases have been successful either through school training, employment training or by placement.

MONTANA

Veterans Elect Physicians.—The Veterans of Foreign Wars of Fort William Henry Harrison, Helena, have elected Dr. Benjamin H. Frayser commander and Dr. Frank G. Grace, senior vice commander.

NEW JERSEY

Conditional Gift.—Mrs. Marshall, Woodbury, has announced that she will give $5,000 to endow a free bed in the Cooper Hospital, Camden, providing the 10,626 pupils of the public schools of Gloucester County will raise another $5,000 to endow a bed.

Personal.—Dr. Abram A. Lydecker has been appointed health officer of Patterson.——Dr. Harry Garrett Miller has been appointed city health officer of Millville.——Dr. George L. Johnson has been appointed police surgeon of Morristown.——Dr. Harvey W. Hartman, Keyport, has been elected physician of Monmouth County.

School Health Legislation.—Coordination of all the school health activities of the state under the direction of a "director of school health" is provided in a bill introduced in the house by Assemblyman Hanson. The bill is supported by the state medical society. It also provides that the director shall be a physician who has practiced in the state at least three years and that he be selected with the approval of the state board of education. The term of office would be three years. It is stated that similar programs have diminished the death rates for the groups affected.

Illegal Practitioners.—We are informed by the state board of medical examiners of New Jersey that John H. Conover, an unlicensed chiropractor, was fined $200 and costs, Dec. 13, 1923.—In December, Gustave Uez, West Hoboken, was arrested on a charge of practicing without a license and pleaded guilty. He claimed to practice mechano-therapy and neuropathy.——Succorso Scallone pleaded guilty to a charge of practicing medicine without a license in January and was fined $500. This was his second offense.

NEW YORK

Philanthropic Foundation Established.—The creation of the Lillia Babbitt Hyde Foundation, with a $2,000,000 fund, was approved by the state board of charities at the meeting, February 8. This money is for medical research and philanthropic use in the metropolitan area.

Chiropractors Seek State Recognition.—Brooklyn chiropractors are planning to introduce a bill in the legislature which would give them official recognition in New York. A campaign for this purpose was launched at a meeting of the Long Island District Chiropractic Society, when they declared that their purpose was to gain legislative recognition.

Vaccination Law Amendment Proposed.—Mr. Lattin has introduced into the assembly a bill to amend the public health law in relation to records and reports of vaccinations. It provides that when physicians perform vaccination they shall make a report within ten days to the local health officer, instead of to the state commissioner of health. The report shall set forth the full name and age of the person vaccinated, the name and address of his parents (if the person is a minor), the date of previous successful vaccination, the name of the maker of the virus, the lot number of the virus and whether on reexamination after the proper interval the vaccination was found to be successful or not. It further provides for the keeping of records and the making of reports by the local health officer concerning vaccinations.

University of Rochester Medical School.—The new medical school of the University of Rochester will be opened in September, 1925, according to present plans. The Strong Memo-

rial Hospital with 240 beds, will open a few weeks in advance and the nurses' home four months earlier. It is estimated, there will be available in 1925, from accumulated interest and the Strong Memorial gift, approximately $3,000,000 for building, without encroaching on the $9,000,000 capital originally donated. The final addition to the medical school and hospital group will be the new municipal hospital to be built by the city of Rochester in the near future. This institution will also have 240 beds. The General Education Board and George Eastman of the Eastman Kodak Company donated the original $9,000,000 and the daughters of the late Henry Strong donated $1,000,000 for the memorial hospital.

Reregistration of Physicians.—The reregistration bill, providing that every licensed physician shall register and reregister with the board of regents for five consecutive years, was introduced in the legislature, February 11, by Senator Carroll, chairman of the committee on public health. The measure also prohibits the use of the title "doctor" by any one save a licensed physician. Immediately after the introduction of the bill, Dr. William L. Love, senator from the Eighth District, Kings, announced that he would oppose the bill on the grounds that it was discriminatory. He claimed that if physicians are compelled to register every year for five years, lawyers and other professional men should be compelled to register. The bill was drafted by Dr. Augustus S. Downing and has the support of the state education department, the president of the Medical Society of the State of New York, Dr. Orrin S. Wightman and the New York City Department of Health, which is at present prosecuting a vigorous campaign against quacks and illegal practitioners of medicine.

New York City

Think "Safety First."—The bureau of public safety of the New York Police Department has devised a plan to make drivers and pedestrians, especially children, think "Safety First." Bells will be rung and whistles blown at 2:59 p. m., one minute before school is dismissed for the day. The children will stand and think of possible danger. Autoists then will be reminded that the children are on the street.

Mental Hygiene Lectures.—The four lectures on mental hygiene at the Woman's City Club, February 6, 11, 20 and 21, included one by Dr. Frankwood E. Williams, medical director of the National Committee for Mental Hygiene, who spoke on "The Baby in Science-Mental Hygiene." Dr. Bernard Glueck spoke on "Some Problems of Adolescence"; Dr. Walter Timme, "The Internal Glandular Mechanism in Relation to Human Inadequacy," and Dr. Beatrice M. Hinkle, "Some Problems Affecting Human Relationships and the Significance of Psychologic Types."

Hospital News.—The Emerson Hotel, a fourteen story structure at Seventy-Fifth Street, near Columbus Avenue, has been sold to the Physicians' Medical Hotel Company who will remodel the building into a hospital. The hotel contains 280 rooms.——As a result of a survey of downtown New York hospitals, the Beekman Street and Broad Street hospitals will consolidate.——The North Eastern Dispensary has established a new clinic for the diagnosis and treatment of cancer.——The Margaret and Sarah Switzer Institute and Home has sold the Christopher Street Home. The activities of the town house have been transferred to Sunnyside Farm, Manasquan, N. J.

Academy of Medicine's Offers.—The trustees of the New York Academy of Medicine have received several offers for the new site at Park Avenue and Sixtieth Street purchased last spring. One offer proposes to give in exchange a 75 foot frontage on Fifty-Seventh Street and 100 feet on Fifty-Sixth Street, between Seventh and Eighth avenues, and in addition the sum of $500,000. Other sites have been offered, none as yet acceptable owing to price or location. The president of the academy, Dr. George David Stewart, has written to every member, requesting an answer as to whether this offer shall be accepted. Four possible locations for the new building have been specified on the card, with the request that members shall indicate their preference.

Drop Dental Clinics in Public Schools.—The board of education, February 13, voted to make no further provision for dental work in public school buildings, and to eliminate as soon as possible dental work as now being done. This means that teeth which have been examined by dentists will henceforth be examined by nurses; if the nurse considers dental work necessary she will send a note to the parents. In abandoning this work, the board of education takes the stand that dental work for school children is for the department of health to provide in regularly organized free clinics. The Kings County Dental Society has passed resolutions protesting against the proposed abolishment of free dental clinics in the public schools, and the Allied Dental Council plans to take similar action at its next meeting.

Lectures on Tuberculosis and Industrial Hygiene.—A six weeks' course of lectures on tuberculosis and industrial hygiene for medical practitioners has been arranged at the New York Academy of Medicine, under the auspices of the Public Health Committee of the New York Tuberculosis Association, and the division of industrial hygiene of the New York State Department of Labor. The purpose is to focus the attention of physicians on such problems of tuberculosis and industrial hygiene as will be of practical assistance in their work. The lectures will be delivered at the New York Academy of Medicine on Tuesday and Friday afternoons at 4:30, beginning March 14. Two lectures of thirty minutes each will be given at each session. An additional half hour will be devoted to answering questions from the floor. The lectures scheduled are as follows:

March 14: Prevalence and Distribution of Tuberculosis in New York City, Dr. Haven Emerson. Industrial Poisonings and Diseases, Dr. Leland E. Cofer.
March 18: Industrial Neuroses, Dr. Michael Osnato. Tuberculosis in Children, Dr. Charles Hendee Smith.
March 21: Etiology and Immunology of Tuberculosis, Dr. Allen K. Krause. The Diagnosis and Treatment of Lead and Copper Poisonings, Dr. William E. Ramsay.
March 25: Carbon Monoxid Poisonings, Dr. Charles Norris. The Roentgen Ray—Its Use in Diagnosis and Treatment, Dr. C. E. Hamilton.
March 28: Treatment of Tuberculosis, Dr. J. B. Amerson, Jr. Treatment of Fractures, Dr. Joseph A. Blake.
April 1: Traumatic Surgery in Industry, Dr. William V. Healey. Early Diagnosis of Pulmonary Tuberculosis, Dr. James Alex. Miller.
April 4: Artificial Pneumothorax and Surgical Treatment of Pulmonary Tuberculosis, Dr. Max Taschman. The Treatment of Hand Infections, Dr. William F. Campbell.
April 8: Industrial Eye Injuries, Dr. John M. Wheeler. Public Control and Home Sanitary Supervision of Tuberculosis, Dr. H. A. Pattison.
April 11: Tuberculosis and Industry, Dr. Iago Galdston. Prevention of Industrial Accidents, Dr. S. Dana Hubbard.
April 15: Activation of Dormant Disease by Trauma, Dr. Raphael Lewy. Results of the Several Types of Tuberculosis Treatment, Dr. Linsly R. Williams.
April 18: Dispensary, Hospital, Public and Private Community Resources Against Tuberculosis in New York City, G. J. Drolet. Sanitary Health Standards: Temperature, Humidity and Light, Dr. G. T. Graham-Rogers.
April 22: The Physical Examination of Employees and Determination of Disabilities, Dr. Cassius H. Watson. Prevention of Tuberculosis, Popular Health Education, J. Byron Deacon.

NORTH CAROLINA

No Evolution.—According to reports, the state board of education and Governor Morrison, January 23, voted against teaching in the public schools of the state any phase of evolution which makes it appear that man descended from a lower order of animals.

Illegal Practitioner Fined.—According to reports, James Pelletier of Canada was fined $100 in the recorder's court, Charlotte, February 2, on charges of practicing optometry and medicine without a license. Pelletier, it is alleged, peddled medicines and lived in his automobile.

OHIO

Epidemic of Smallpox.—An epidemic of smallpox is reported from San Toy, fifty cases having been discovered by the county physician.

OREGON

Health Unit Established.—The Clackamas County Health Association was recently organized in Oregon City. This unit will cost about $10,000 a year and was made possible by the Rockefeller Foundation and the state board of health, each donating an equal amount. Dr. Lance E. Briscoe, Portland, has been appointed physician to the county.

PENNSYLVANIA

Contagion and Taxicabs.—The city health officer of Williamsport has issued an order to the effect that no public conveyance will be allowed to be used for transporting cases of contagious disease to hospitals or elsewhere.

Personal.—Dr. Merl V. Hazen, Harrisburg, has been appointed a member of the state board of medical education and licensure.——Drs. George L. Laverty and William S. Russell were elected president and secretary, respectively, of the Dauphin County Medical Society, recently.——Dr. Robert F. Trainer, Williamsport, was appointed health officer of that town, recently, to succeed Dr. Clarence Shaw.——Dr. Frederick C. Kress was elected president and Dr. William J. Murray, secretary, of the staff of the Mercy Hospital, Johnstown.

Annual Meetings.—The sixteenth annual meeting of the Pennsylvania State Conference on Social Work was held in Wilkes-Barre, February 13-16. The needs of the foreign born population and the development of the adolescent child were topics of discussion. Among the speakers were: Dr. Charles J. Hatfield, executive director of the Henry Phipps Institute of Philadelphia; Dr. Haven Emerson, professor of public health administration, Columbia University, New York; Dr. C. C. Carstens, director of the Child Welfare League of America; Prof. Robert E. Park of the University of Chicago; Dr. William G. Turnbull of the state health department, and Prof. Francis N. Maxfield of the state department of public instruction. Other groups meeting at the same time were the state conference of prohibition and parole, Pennsylvania chapters of the American Red Cross, the state public charity association, mothers' assistance fund workers, state child welfare league, public education and child labor association and the travelers' aid societies of Pennsylvania.

Philadelphia

Hospital Dedicated.—The new wing of the American Oncological Hospital at Powelton Avenue was formally dedicated, February 6. The speakers were Drs. Wilmer Krusen, William S. Newcomet and John Norman Henry.

Emergency Medical Corps Election.—Officers of the Emergency Medical Corps, recently organized (THE JOURNAL, February 16, p. 555), were elected by the board of governors, February 15, as follows: Dr. Charles A. E. Codman, president; Dr. George Harlan Wells, vice president; Dr. Louis Lehrfield, secretary, and Dr. George A. Knowles, treasurer. The following were made directors: Dr. William Duffield Robinson, Dr. John D. McLean, Dr. William A. Pearson, Dr. Frank C. Hammond, Dr. Edward J. G. Beardsley, Dr. John H. Remig, Dr. Christian B. Longenecker, Dr. George C. Yeager, Dr. John W. West and Dr. Harry B. Wilmer.

Personal.—Dr. Daniel J. Donnelly was elected chairman of the staff of the Samaritan Hospital at the scientific meeting of the staff.——Dr. William M. Dobson, commanding officer of U. S. Veterans' Hospital No. 49, Philadelphia, has been appointed head of the new veterans' hospital which is nearing completion at Chillicothe, Ohio.——Dr. A. Graeme Mitchell, Philadelphia, has been appointed to the B. K. Rachford chair of pediatrics in the University of Cincinnati College of Medicine, beginning in September. He succeeds Dr. Kenneth D. Blackfan, who resigned to accept a position at Harvard Medical School, Boston.

Society Elections.—At the annual meeting of the Philadelphia Clinical Association Dr. Charles Barnes and Dr. Louis R. Wiley were elected president and secretary, respectively. ——Dr. Albert Graeme Mitchell was elected president; Dr. Frederick Fraley, vice president, and Dr. John P. Scott secretary of the Pediatric Society of Philadelphia at the recent annual meeting.——The Clinical Pathological Association elected Dr. Preston M. Edwards, president, and Dr. Frederick W. Fortune, secretary.——At the annual meeting of the Philadelphia Neurological Society, Dr. Charles W. Burr was elected president; Dr. Clarence A. Patten, secretary, and Dr. Sherman F. Gilpin, treasurer.

SOUTH DAKOTA

Personal.—Dr. B. Park Jenkins, Waubay, was reappointed by Governor McMaster, January 26, to a five year term as superintendent of the state board of health and medical examiners.

WASHINGTON

The Sweet Students.—An endowment fund has been established by the Sweet family from which money will be loaned to young men by the name of Sweet who desire to study medicine, it is announced by Dr. Paul W. Sweet, Seattle. It will be available only to those men who attend Class A medical schools and only after a successful freshman year has been completed. Foreign study will also be provided for.

Capacity of State Hospitals Increased.—Accommodation for approximately 450 more patients will be provided at the various state hospitals through developments nearing completion. The work on the new nurses' home at the Northern State Hospital, Sedro Woolley, is nearly finished; buildings formerly used as a women's home at Medical Lake are being remodeled at a cost of about $20,000 and will be ready for occupancy by spring. They will house 200 patients. Completion of the federal hospital at American Lake will release quarters at the Western State Hospital, Steilacoom, for 130 patients.

WEST VIRGINIA

University News.—The contracts have been awarded for the construction of the hall of chemistry for the University of West Virginia, Morgantown, which will be erected at a cost of $750,000.

WISCONSIN

Personal.—Dr. Charles W. Rodecker, Holcomb, has been reappointed to the state board of medical examiners for the term ending July 1, 1927.——Dr. Gentz Perry, St. Louis, has been appointed roentgenologist for the Kenosha Clinic, Kenosha.——Dr. Richard Dewey, Los Angeles, was the guest of honor at a banquet given by the Milwaukee Neuropsychiatric Society, January 4, and also at a banquet at the Milwaukee Sanatorium, January 11.

State Board of Health Meets.—The annual meeting of the state board of health was held in Madison, February 1. Dr. William F. Whyte, Madison, was reelected president; Dr. Edward S. Hayes, Eau Claire, vice president; Dr. Cornelius A. Harper, Madison, state health officer, and Dr. Arthur H. Broche, director of the state cooperate laboratory at Oshkosh. The board held that private laboratories which do public health work must adhere to rules adopted by the state board of health, and all applications for such certification must first be approved by it.

WYOMING

Licenses Revoked.—The certificates of registration of licenses to practice medicine and surgery in the state of Wyoming of Drs. Patrick E. Shortt, Casper; Joseph Francis O'Donnell, Casper, and James Stanley Hill, Cheyenne, were revoked by the state board of medical examiners, February 11. The board adopted a resolution that it would recognize applicants for license, both by reciprocity and examination, only who were graduated from medical schools which are rated Class A by the American Medical Association.

CANADA

Hospital News.—Contracts have been let for wrecking buildings to make way for a new building for St. Michael's Hospital, Toronto, Ont.——An outbreak of scarlet fever in Toronto, Ont., has closed the General Hospital to visitors for a few days.

Government Replaces Hospital Heads.—Objection is made by the Canadian Medical Association to the government's decision to replace the medical superintendent of Ste. Anne de Bellevue Hospital by a lay superintendent. A similar policy is contemplated with respect to all other hospitals under the supervision of the Department of Soldiers' Civil Reestablishment. Dr. Thomas C. Routley, Toronto, member of a delegation from the Canadian Medical Association formally to protest to the premier, stated that economy was the government's reason for the change.

Tuberculosis Work in Canada.—The medical faculty of the University of Manitoba, Winnipeg, beginning with the 1913-1914 session, arranged with the Manitoba Sanatorium to give courses in tuberculosis at the sanatorium from two weeks to one month each for both undergraduates and interns who during the course lived at the sanatorium. For several years the Saskatchewan Sanatorium, Fort Qu'Appelle, has been affiliated with the Manitoba University in this work and during the last year has had final year men spending four months each at the sanatorium. This work is showing results in the tuberculosis campaign in these two provinces.

Personal.—Dr. Henry Howitt has resigned as health officer of Guelph.——Dr. Percival A. Williams, Mattituck, N. Y., has been appointed in charge of the Rose Sanatorium, Brentwood. ——Dr. William H. Pepler, Toronto, has been reappointed chairman of convocation of Trinity College.——Dr. Davidson Black, for some time professor of anatomy, Peking Union Medical College, China, has returned to Toronto.——Dr. Ambrose T. Stanton, formerly of Toronto, is director of the government research laboratories of the Federated Malay States at Kuala Lumpur.——Dr. Caroline S. Brown has been reelected a member of the board of education of Toronto.—— Dr. and Mrs. Adam Henry Wright, Toronto, celebrated their golden wedding, January 5.——Dr. Bernard L. Wyatt, Grand Mere, Quebec, has resigned from the executive committee of the Canadian Public Health Association to accept an executive position with the Millbank Memorial Fund, New York City. ——Dr. William A. Costain, Toronto, addressed the Pittsburgh College of Physicians on "Drainage of the Thoracic Duct," February 21.

GENERAL

License Stolen.—It is reported that the Massachusetts certificate of medical registration, issued to Dr. Cranswick Burton Monro, Bow Island, Alberta, Canada, was stolen from his automobile, recently. Massachusetts state board members should be on the lookout for it.

Colloid Symposium Published.—The chairman of the committee on colloids of the National Research Council states that the papers and discussions of the first annual colloid symposium at Madison, Wis., June, 1923, have been published by the Department of Chemistry of the University of Wisconsin. The monograph comprises 420 pages.

Fund for Research.—The National Academy of Sciences has made Prof. Harold Hibbert, Yale University, New Haven, Conn., a grant of $400 from the Bache Fund and $300 from the Cyrus M. Warren Fund, for the purchase of apparatus for the determination of ultraviolet absorption spectra in connection with the "Constitution and Properties of Carbohydrates and Polysaccharides."

Society News.—The next annual meeting of the American Therapeutic Association will be held, June 6-7, at Toronto, Canada, under the presidency of Dr. George H. Evans, San Francisco.——April 29-May 1 has finally been decided as the date for the annual meeting of the Texas State Medical Association, the secretary announces.——The nineteenth annual meeting of the American Association of Museums will be held at Washington, D. C., May 12-13.

Headquarters for Pharmacists.—At a meeting of the board of trustees of the American Pharmaceutical Association, Washington, Dec. 7, 1923, a committee of five was appointed to arrange for raising $500,000 to erect a building to provide for the activities of the American Pharmaceutical Association and afford facilities for representatives of all the national drug trade associations. The association already has numerous exhibits for a museum and nucleus for a pharmaceutical library. It also has the promise of a gift to equip a research laboratory, but has no place to house this equipment.

League of Nations Appoints Americans.—Dr. Hugh S. Cumming, Surgeon-General of the U. S. Public Health Service, Washington, D. C., has been elected one of the vice presidents of the permanent health organization of the League of Nations which recently met in Geneva, Switzerland. Dr. Otto R. Eichel, Albany, N. Y., director of vital statistics for the state department of health, has been appointed to direct the epidemiologic intelligence and statistics section of the league, and Dr. Alice Hamilton, professor of industrial medicine, Harvard Medical School, Boston, has been appointed a member of the permanent health committee.

Elizabeth Thompson Science Fund Awards.—The following awards were made at the last meeting of the trustees of the Elizabeth Thompson Science Fund: to Hazeltine Stedman, Mount Holyoke, Mass., $200 toward the purchase of equipment for an investigation on the effects of ultraviolet radiation on pure proteins; to Prof. H. Stolyhwo, Anthropological Institute, Warsaw, $200 to aid in his studies of anthropologic types in Poland; to Dr. Israel Kleiner, New York Homeopathic Medical College, $100 for an investigation on the state of the sugar of the blood in diabetic human beings; to Dr. William DeB. MacNider, University of North Carolina Medical School, Charleston, $285 for pharmacologic studies. Applications to this fund should be made well in advance of the February, May and November meetings of the trustees.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lakeside Hospital, Cleveland, $400,000, by J. H. Wade.

Union Hospital of the Bronx, $100,000 under the will of John J. McKenna.

University of the South, Sewanee, Tenn., $50,000, in memory of her son Francis, and the Grove Home of Convalescents, Evanston, Ill., $15,000, by the will of Mrs. James L. Houghteling of Chicago.

St. Louis (Mo.) Maternity Hospital, $25,000, by the Cotton Belt Railway Company; $10,000 each from Edward Mallinckrodt, Jr., Mr. and Mrs. Goldman and Mr. and Mrs. W. K. Bixby; $5,000 each from Mrs. Keech and John F. Lee, and $1,000 each from Mr. Emmett Myers, Mrs. F. W. Vesper, Dr. Fred J. Tausig, Mr. David Biggs and Mrs. A. W. Weddell.

St. Mary's Orphan Home, Dubuque, Iowa; Mount Pleasant Home, Dubuque; Hill Crest Deaconess Home and Baby Fold, Dubuque; St. Vincent's Home, Davenport; Iowa Soldiers' Orphan Home, Davenport, and the Home for the Friendless, Cedar Rapids, approximately $15,000 each, under the will of Mary Groth of Norway.

Association for Improving the Condition of the Poor, New York Home of St. Giles the Cripple, Servants of Relief of Incurable Cancer, New York Society for the Relief of the Ruptured and Crippled, St. John's Hospital, Long Island City and the State Charities Aid Association, $10,000 each; Brooklyn Home for the Blind, $5,000, by the will of Thomas D. Hurst.

Addison Gilbert Hospital, Gloucester, Mass., $10,000, and the Newton (Mass.) Hospital, $5,000, under the will of Edward H. Haskell, Newton.

The Jewish Hospital and the Jewish Foster Home, Philadelphia, and the United Hebrew Charities, each $5,000, and the Mount Sinai Hospital, Philadelphia, $2,500, under the will of Abraham Stern.

Home of the Merciful Savior for Crippled Children, Philadelphia, $2,000 under the will of Annie Katanach.

Jewish relief and charitable organizations in Philadelphia, $1,800, by the will of the late Dora Cooperman.

Fabiola Hospital, Oakland, Calif., $1,000 each, from William A. Barbour, Mrs. William Moller, Mrs. H. C. Taft, Mrs. Edson Adams and Kohler and Chase.

St. Mary's Hospital, La Salle, Ill., $1,000, by the will of James McGreevey.

Episcopal Hospital, Philadelphia, $1,000, by the will of Fannie Gordon, who died in the Home for Incurables.

LATIN AMERICA

Cubans to Honor Dr. Findlay.—A committee of physicians of Havana, Cuba, is planning to erect a monument at the entrance to Havana Harbor, in memory of Dr. Carlos J. Findlay, originator of the theory that mosquitoes transmit yellow fever. Dr. Findlay died in 1915.

FOREIGN

Donation to Dr. Bohr.—The Rockefeller Foundation Education Board has given Prof. Niels Bohr of Copenhagen $40,000 to modernize his laboratory and to buy new instruments.

Foreign Mineral Waters to Be Studied.—A scientific expedition will soon leave France for Africa, under the direction of Prof. M. C. Moureu, of the Collège de France, to study the mineral waters of Antsirabé, which are said to resemble the waters of Vichy and also to possess radioactivity.

Disability Pensions in France.—The Académie de médecine at Paris recently passed a resolution urging that consultation of medical experts, known to be competent, and a fixed ratio of compensation be required before the right to a pension is accepted. The law of 1919 has allowed abuse of the pension privilege in certain instances.

Child Welfare Work.—With funds provided by the Carnegie United Kingdom Trust, a cooperating unit for all agencies concerned in welfare work for mothers and babies has been erected in Liverpool, England. It contains consulting rooms, lecture rooms and two wards for children. The building was formally dedicated Dec. 15, 1923.

The New Buildings of the Marburg Policlinic.—Our German exchanges mention the dedication of the new model buildings for the clinic for skin and venereal diseases, with sixty-two beds, and of the first unit of the children's clinic, with forty-one beds, connected with the University of Marburg. They mention that private contributions from America helped to defray the expenses of the children's clinic. The dermatologic clinic was built by the state.

Tribute to Kouwer.—The professor of gynecology and obstetrics at the University of Utrecht, Dr. B. J. Kouwer, was recently presented with an album containing the names of over 1,000 friends who had contributed to the portrait bust which was presented at the same time. The occasion was the twenty-fifth anniversary of his incumbency. A souvenir edition of the Netherlands *Tijdschrift voor Gynaecologie* was issued in his honor, and the celebration concluded with a banquet.

Personal.—Dr. Steven Weis, councilor of the ministry of health of Hungary, is making a three months' visit to the United States as the guest of the International Health Board of the Rockefeller Foundation, in order to study public health methods.——Dr. H. N. Neeb, retired chief of the military medical service in the Dutch East Indies, and professor of hygiene in the University of Dandoeng, Java, recently came to America to study sanitation methods in this country.——Dr. S. Laache, professor of internal medicine at the University of Christiania, retired on his recent seventieth birthday from his chair and also from the charge of the Rikshospital. He was editor of the *Norsk Magazin for Lægevidenskaben* 1884-1892, and the list of his contributions to medical literature is a long one.

News from South Africa.—For the first time a series of "Health Weeks" has been held in the Transvaal. Exhibitions of food products and aids to health were given, in which the natives (Kaffirs) took great interest. Lectures were given on vaccination and "conscientious objectors," plague, typhus fever, "carriers" among dairy employees, leprosy, tuberculosis, malaria, food poisoning, child welfare and housing conditions. It is expected that "Health Weeks" will be made an annual affair.——A conference of representatives of the medical councils of the Union of South Africa was held, Dec. 3-5, 1923, to consider regulations for the uniform training of nurses and midwives.——Dr. H. A. Loeser has been appointed lecturer in acute infectious diseases, and Dr. J. G. deKock, lecturer in ophthalmology, to the University of Witwatersrand.——A

memorial plaque to Dr. Anne F. Cleaver, a medical inspector of schools, was unveiled, Nov. 30, 1923, at the school clinic, Johannesburg, by Mrs. Smuts, wife of the premier.

Hospital News from China.—A new hospital building has been erected at the China Imperial Medical Women's Hospital, Kaifeng, Honan, with a capacity for sixty patients. The governor of Honan donated $4,000 toward the fund; others donated the roentgen ray and electric plants. Another building will soon be erected for ambulatory cases.——A campaign is under way to raise $300,000 for the Wha Mai Hospital, Ningpo. The Medical Missionary Roentgen-Ray Unit, built by Dr. Hodges of the Union Medical College, was opened last year.——The new hospital of the Canadian Presyterian Mission, Weihwei, Honan, was formally opened to the public, Nov. 8, 1923. It has a capacity for seventy-six patients. Dr. Chaun, Peking, former head of the Chinese Army Medical College, and Dr. Harold Balme, president of Shantung Christian University Medical School, gave the principal addresses. ——The Church of the Brethren Mission opened a new seventy bed hospital at Pingting, Shansi, Nov. 13, 1923. Dr. L. Carrington Goodrich and Dr. Francis F. Tucker, Tehsien, represented the China Medical Board and the medical fraternity, respectively. Drs. Fred J. Wampler and Dr. Kaufman, with a staff of American nurses, will have charge of the hospital.

Deaths in Other Countries

Dr. **A. C. van Bruggen,** Dordrecht, a leader in preventive medicine and in the organization of the profession in the Netherlands, aged 60.——Dr. **J. Ardouin,** of Paris, retired inspector general of the maritime and quarantine services of Egypt before the English occupation, aged 88.——Dr. **V. Subotic,** professor of surgery at the University of Belgrade, aged 64.——Dr. **L. de Beurmann,** Paris, noted for his research on sporotrichosis and leprosy in the French colonies.

Government Services

Surgeon-General Cumming Reappointed

The President has sent to the Senate the nomination of Dr. Hugh S. Cumming for reappointment as Surgeon-General of the U. S. Public Health Service. It is understood at the White House that the nomination will be promptly confirmed. The appointment is made in accordance with the usual custom of honoring the head of the service with two terms, and is a recognition of the services of Dr. Cumming and of his administration during the last four years. It is understood that the reappointment of Dr. Cumming was indorsed by the President-Elect, the President and many former Presidents of the American Medical Association.

Tuberculosis Hospital for California

An agreement for the purchase at San Fernando, Calif., of 625 acres to be used as a site for a Veterans' Bureau hospital has been made between the Department of Justice and Volney Craig, the owner of the land. Condemnation proceedings had been begun against the latter when he declined to sell at a figure thought reasonable by the department. The plans of the Veterans' Bureau provide for a 300 bed tuberculous hospital on the site. The institution will be built under a plan of construction similar to the Livermore Hospital, and will cost about a million dollars.

To Extend Circulation of Public Health Service Reports

Two bills have been introduced in Congress which have for their purpose the publication of a much larger quantity of bulletins and reports of the U. S. Public Health Service. Because of existing restrictive legislation, the service cannot print more than a thousand copies of any bulletin, except laboratory bulletins and public health reports. The public is thus denied the benefit of a wide distribution of many publications on hygiene, sanitation and medical subjects of great importance prepared by the Public Health Service. One of these bills, introduced by Representative Colton, Utah, permits the Secretary of the Treasury to print publications of the Public Health Service in such numbers as the interests of the government and the public may require. A bill of similar character has been introduced by Senator Jones of Washington.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Jan. 28, 1924.

Canned Foods in Relation to Health

Recent investigations on behalf of the food investigation board of the ministry of health by Dr. W. G. Savage, R. F. Hunwicke, and R. B. Calder have done much to revolutionize previous views regarding the sterility of canned foods. They show that cans apparently sound often contain microbes in a dormant state. But they become unsound only when puncture or inadequate sealing allows vegetation of the spores. Danger to health does not necessarily arise even when putrefaction has taken place. It depends on the presence of the specific bacteria of food poisoning—the *Salmonella* group (*B. enteritidis, B. aertrycke* and *B. botulinus*). These are only rarely found in our imported canned food. Since 1882, fifty-one outbreaks of poisoning due to canned food have occurred, of which sixteen were due to living bacilli of the group and twenty-seven to toxins formed before canning; the cause has not been definitely ascertained in the remaining eight. Twenty-six of the outbreaks were due to canned meat. In ten of the more recent in which the source was ascertained, the cans all came from South America, from which a little more than half of our total imports of canned meat are derived. The federal food inspection act of the United States is evidently so efficiently enforced as to prevent this danger from the canned food sent to us. Sixteen of the remaining outbreaks were due to salmon, and nine to other fish, crustacea or fruit. The salmon outbreaks were mostly due to infection with living bacilli, and point to failure of the sterilizing process. As fish are often gradually collected before being sent to the canneries, they may easily become infected or undergo decomposition. But nonspecific putrefactive changes do not cause food poisoning. Of botulism only one outbreak—the tragic one in August, 1922, at Loch Maree—has been recorded in this country. The infection came from a jar of wild duck paste.

Regulations for the Sale of Dried Milk

The minister of health has made regulations which require that every can containing dried milk bear on the label in type of a prescribed size "Dried full cream milk," "Dried partly skimmed milk," or "Dried machine skimmed milk" (or "Dried skimmed milk") as may be applicable. Dried full cream milk must contain not less than 26 per cent. of milk fat; dried partly skimmed milk, not less than 8 per cent. The percentage between these limits may be indicated on the label. Dried machine-skimmed (or fully skimmed) milk is that which contains less than 8 per cent. of milk fat. Each label must state the equivalent of pints of milk which the receptacle contains. The label on partly skimmed milk should state that the contents must not be used for babies except under medical advice, and that on machine-skimmed milk must bear the words "Unfit for babies." If a local authority finds that a consignment of dried milk does not comply with the regulations, it must communicate with the local authority of the district in which the milk was manufactured or labeled, if in this country, and, if elsewhere, with the ministry of health.

Promotion of the Teaching of Hydrology

A memorandum on the promotion of and teaching of hydrology in England has been drawn up by the joint committee of the International Society of Hydrology and the Section of Balneology of the Royal Society of Medicine, and

has been sent to the ministry of health. It is pointed out that no fewer than 1,000,000 invalids are annually referred to the chief spas of Europe. An increasing proportion of British and American invalids seek treatment in France. No fewer than 10,000 British visited a single French spa last year. The report points out that of the working time lost by the population through illness, a large proportion is due to chronic diseases of the rheumatic type, which are more effectively treated by hydrologic methods than in any other way. If sent for treatment early, the patients can be restored to usefulness; but, if allowed to drift, as they often are, they become hopeless cripples. It is claimed that the British spas and clinics are quite able to treat such cases. It is estimated that during the war from 50,000 to 70,000 military cases were treated at them. But, in accordance with our national way of leaving things to private enterprise, the state has never given any assistance to hydrology. In France the use of waters has to be authorized by the government. In Britain there is no state or official recognition, authorization or inspection. The spas are entirely under municipal or private control. In France there is the "Commission des eaux minérales" of the ministry of health and faculty of medicine. Here we have no central advisory or coordinating authority. In France, lectures on hydrology are given at the universities, and study tours and laboratory work are arranged, and there are large funds for organization. Here there is no systematic teaching on the subject, no facilities for technical investigation and research, and no funds for the organization of teaching. We have many disused and undeveloped waters. The committee proposes, in view of the need of some simple and effective organization to serve the needs not only of the British isles but also of the empire, that: 1. The ministry of health be requested to appoint a permanent advisory committee, analogous to the French "Commission des eaux minérales." The functions of such a committee should be to: (*a*) carry out a survey of British mineral waters at home and in the dominions; (*b*) give official authorization of such waters, and (*c*) organize research and teaching, as described above, the research to include investigation into the economic value of the organized treatment by waters and baths of chronic rheumatic disorders among insured patients. 2. The universities be requested to include medical hydrology in their curriculum by the institution of lectureships.

The Detrimental Effect of Monotony in Industry

Mr. S. Wyatt, investigator to the Industrial Fatigue Research Board, has published in the current number of the *Journal of the National Institute of Industrial Psychology* an interesting research on the effects of monotony in industry. Three persons were engaged in continuous repetition work throughout the day. On other occasions the type of work was changed at fifty-minute intervals. It was found that the output on the varied days was from 4 to 24 per cent. greater than on the unvaried days. Experiments were made also under actual industrial conditions. The process investigated consisted essentially of the removal and replacement of bicycle links from spindles fitted into holes in a rotating disk. The output under ordinary conditions of work of three selected operatives was measured for four weeks. During the next two weeks these operatives undertook other forms of work (link assembling) during the first part of the morning and afternoon spells, but returned to their usual occupation during the latter part of these spells. It was found that the efficiency of all the operatives during the latter part of the spells on the days when they had been engaged in other work during the other part of the spells was much higher than when the same activity was continued throughout the day. The average increase of efficiency on the varied days was 7.5 per cent. from 10:15 a. m. to 12:45 p. m., and 11.8 per cent. from 3.45 to 5.30 p. m. The change of work was much appreciated by those engaged in it. On the question of the effect of monotony on temperament and intelligence, Mr. Wyatt cites this case: In one factory in which repetition work prevailed, the more intelligent operatives found the conditions so intolerable that they sought other employment. Consequently, the manager now accepts for employment only those applicants who seem to possess just enough intelligence for the work, and rejects the more intelligent ones.

Street Accidents in London

The toll in deaths and other accidents taken by vehicular traffic in the streets of London is serious. The following are the official figures for the last three months:

Street Accidents, October-December, 1923

Type of Vehicle	Number of Persons Killed	Number of Accidents to Persons or Property
Mechanically propelled:		
Omnibuses	36	2,484
Street cars	3	1,308
Cabs	14	988
Private motorcars	47	4,776
Motorcycles	9	872
Trade and commercial	61	4,314
Traction engines	..	11
Horse-drawn, etc.:		
Omnibuses	..	2
Cabs	1	16
Broughams	..	40
Trade and commercial	13	1,929
Pedal cycles	5	1,808
Horses—ridden or led	..	44
Unknown vehicles	..	....
Totals	189	18,592

The figures in the first column are included in those in the second column.

Spiritual Healing

A meeting of the Divine Fellowship of the Church of England has been held to consider the recent report of the committee appointed by the Lambeth conference to investigate spiritual healing. Rev. John Maillard, warden of the followship, criticized the report. He said that the church did not at present see sufficiently clearly its own ministry of divine healing as distinct from the agencies of healing in the world. It believed that somehow they all hung together; but Christ never used physical healing that had a medical value, and in his command to the church it was to divine healing (which he exercised exclusively) that he referred. A great weakness of the report was that the Bible did not seem to be mentioned. The report left the impression that the ministry of healing in the church was hardly distinguished from modern psychotherapy. Mr. Maillard condemned M. Coué's teaching on the power of the imagination, as a menace to religion, rather than a strength.

Mummies and Medicine

In a lecture on this subject, Prof. G. Elliott Smith said that the practice of embalming the dead in ancient Egypt was interesting for other reasons than a strange and gruesome custom, which had made it possible to gaze on the faces of prominent persons who lived thirty centuries ago. The connection of mummification with the development of medical science was specially intimate. The process familiarized embalmers with certain aspects of the structure of the human body, and—what was far more important—prepared the minds of the people to tolerate the practice of dissection. It also made them acquainted with the antiseptic properties of certain vegetable and mineral substances that afterward played an important part in the treatment of disease. The development of the custom of mummification was, moreover, closely related to the origin of magic and medicine. The

fundamental idea that prompted the invention of embalming, and determined its survival for so many centuries was the belief that it achieved something more than merely rendering the body incorruptible. It was regarded as a means not only of prolonging indefinitely the existence of the dead, but also as a device for conferring life on them; in other words, of preventing the cessation of vital activities. Thus, its aim was brought into agreement with that of the primitive physician; namely, to combat disease—which was regarded as a reduction of vitality—by conferring on the patient additional vital substance.

PARIS

(From Our Regular Correspondent)

Jan. 25, 1924.

Influenza in Paris

The municipal statistics of Paris are published to cover periods of ten days. The last two reports show an increase of deaths of about 200 for each period. This may be attributed to diseases of the respiratory passages and to influenza, which has appeared in a virulent form. The normal average of deaths from influenza for each period is about five. The report for the last period in December was thirty-five, and for the first ten days of January, sixty. The incidence is much greater among women than among men. In a recent report, there were 310 adults with influenza in the hospitals of Paris, 117 of whom were men and 193, women. This difference (noted also during the epidemic of 1918) seems likely due to clothing worn by women which does not protect them adequately, especially light shoes and thin stockings. Among children there is not this difference in the incidence of influenza, for girls are as warmly clad as boys.

A Daily Medical Journal

The first number of *Le Médical*, a daily medical journal, has appeared. It plans to publish all events of interest to physicians. It will contain news that interests the reader of any great daily, and also material that interests practitioners who desire to follow scientific movements and to arrange systematically what they wish to preserve. Certain pages will be devoted to political, economic and financial problems, literary criticism and art, while others will deal exclusively with scientific subjects.

The journal announces that it is not affiliated with any pharmaceutical house or editorial syndicate, and that it is absolutely independent. It promises that its advertisements will be carefully selected, and that there will be guarantees which readers have a right to demand. The announcement is signed by Senator J. L. Breton, former minister of public health (who is not, however, a physician).

Preferential Milk Tickets

The decrease in the milk supply for Paris, during the war, and the necessity of assuring sufficient milk for the children, the sick and the aged, induced the prefect of the department of the Seine to organize a system of control in 1917. Merchants were required, in selling milk, to give preference to those who held so-called preferential milk tickets. These were issued by municipal authorities on presentation of a medical certificate which showed that a person was entitled to prior consideration. The number of tickets issued became so great that the quantity of milk to which holders were entitled exceeded the supply, whereupon the prefect issued an order requiring the medical certificates to be signed by a physician of the public welfare department. Sick persons (not indigents) were obliged to go to a muncipal center and to pay 6 francs to obtain a certificate to present to a physician of the public welfare department. The indigent were exempt from such payment. The Syndicat des médecins of the department of the Seine protested against this order (THE JOURNAL, Jan. 29, 1921, p. 324) and sent an appeal to the Conseil d'Etat. It was alleged that the order compelling applicants for preferential milk tickets to apply to a physician of the public welfare department violated the law of Nov. 30, 1892, which permitted doctors of medicine to practice without undue restraint. Issuing medical certificates being obviously within their rights, the petitioners argued that patients were forced to apply to a physician of the public welfare department, who thus was granted privileges greater than those accorded his colleagues. But the council overruled the protest, and replied that a legislative order empowered the minister of agriculture to regulate the issue of food tickets by the municipal centers under control of the mayor. Consequently, in requiring persons to present their claims to physicians employed by the municipal administration and to pay a fee for a certificate, the prefect of the department of the Seine had merely acted in conformance with ministerial orders and had properly used authority that was conferred on him.

A New List of Notifiable Diseases

The president of France has issued an order modifying the list of notifiable diseases. Beginning April 1, the diseases for which notification and disinfection will be compulsory are typhoid fever, typhus, smallpox and varioloid, scarlet fever, measles, diphtheria, miliary fever, cholera and choleriform diseases, plague, yellow fever, dysentery, puerperal infections and ophthalmia neonatorum, epidemic cerebrospinal meningitis, acute anterior poliomyelitis, trachoma and Malta fever. The diseases for which notification is optional are pulmonary tuberculosis, whooping-cough, influenza, pneumonia, erysipelas, mumps and ringworm. Heretofore, notification for trachoma was optional, and was not required at all for Malta fever (THE JOURNAL, Feb. 9, 1924, 485).

The History of Exophthalmic Goiter

In a book that is just off the press, A. Souques, a collaborator, raises the question as to who first described exophthalmic goiter. The honor has been attributed variously to Saint-Yves, Demours, Flajani and Testa, but these claims will not stand investigation. Souques informs us that Parry, an English physician of the eighteenth century, whose posthumous works were published by his son in 1825, described the first recorded cases of exophthalmic goiter. He quotes a passage from Parry's description that is very accurate, including his account of the symptom complex, goiter, tachycardia and exophthalmia. This does not lessen the merit of Graves and of Basedow, for they were not aware of the work of their predecessor. Although Basedow's memoir appeared in 1840, and Graves' lectures in 1843, they were unknown in France. The first French observations on this disease were published by Charcot, who obtained his knowledge of exophthalmic goiter from a foreign student whom he was tutoring. It frequently happens that history is not just to discoverers.

Personal

At the last meeting of the Academy of Medicine, an election was held to fill the vacancy caused by the death of the physiologist Langlois. Dr. Claudius Regaud, director of the medical services of the Institut de radium, was elected by forty-three votes, as against thirty-nine votes for Dr. Camus.

The Eighteenth Medical Study Tour

The annual medical study tour, under the direction of Carnot, professor of therapeutics at the Faculté de médecine of Paris, and of Associate Professor Rathery, will take place during the Easter recess. It will include three itineraries: (1) the stations of the Provence and the Mediterranean;

(2) the stations of the eastern Pyrenees, and (3) Corsica. Persons desiring to take part in the expedition should address their requests to Dr. Gerst, general secretary, 94 boulevard Flandrin, Paris-XVIe.

Death of Maurice de la Sizeranne

The death of M. Maurice de la Sizeranne, aged 66, has been reported. He had devoted his whole life to the blind. When 9 years of age, while playing, an arrow pierced one of his eyes, resulting in the total loss of vision. From that time he exerted himself in every possible way to relieve the blind of their loneliness. He established the first journal printed in braille, in 1883, naming it the *Louis Braille*. He founded the library for the blind, which now numbers 80,000 volumes. He was a founder of the Association Valentin Haüy. He published "Les aveugles par un aveugle," "Trente ans d'études et de propagande en faveur des aveugles," and "La question des aveugles in 1910."

VIENNA

(From Our Regular Correspondent)

Jan. 25, 1924.

Cancer of the Stomach

At a recent meeting of the medical society of this city, Dr. Schönbauer reported his investigation of patients who underwent operations for carcinoma of the stomach. Reviews of this subject are old, because surgeons have lately turned their attention to gastric ulcer. The necropsy reports of the Vienna pathologic department clearly prove that cancer of the stomach is increasing in frequency; 2.28 per cent. in 1918 and 3.6 per cent. in 1923 of all necropsies showed cancer of the stomach. Among 432 cases in the Eiselsberg clinic in Vienna, last year, operations were not performed in forty-five because of metastases, severe hemorrhage or refusal of the patient. Among 387 patients operated on, 25 per cent. gave a family history of gastric ulcer; twenty-seven had cancer in the family; twenty-five had stomach trouble before, and forty-three had tuberculosis in the family. The age of predilection was from 50 to 60. A jejunostomy was made in twenty-two cases, gastro-enterostomy in 109, a radical operation in 157, and only an exploratory operation in 104. The last group had been suffering from stomach trouble from four to thirty-five years, and had previously refused to undergo an operation. Incorrect diagnoses were made in more than 18 per cent. Diagnosis may be difficult, because the roentgen ray does not always reveal the actual condition, especially when there are metastases. Among patients having had only exploratory operations, three are still alive; thirty-nine lived three and a half months; ten, more than six months. The operative mortality was more than 10 per cent., although the operations were done mostly under local anesthesia. Among patients having a jejunostomy, eleven died within a year (50 per cent.). The gastro-enterostomies were performed on patients who were ill only four or five months on an average before operation. The posterior operation was performed eighty times; the anterior operation, twenty-four times. The operative mortality was 14 per cent. Among twenty-eight cases followed up, five of the patients are still alive and twenty-three dead. Of the surviving patients, three were operated on four years ago; two, five years ago. Among 157 patients who had radical operations, 128 had Billroth operation No. 2, and twenty-nine Billroth No. 1, with a total mortality of 20 per cent. Among eighty-seven of these patients who could be traced, twenty-three are alive and fifteen of them (with adenocarcinoma) are living from one and one half to eight and one half years after operation. Six patients having infiltrative tumors are alive from one and one-fourth to six years after operation, and two patients having colloid cancer are alive from two and one-half to four years after operation. The majority of the tumors were situated at the pylorus, the second largest number being on the lesser curvature, and the smallest number on the major curvature. The last group gives the best prognosis; the second, better than the first. No difference in mortality was found in regard to local or general anesthesia.

Death of Docent Dr. J. Schütz

The balneologist Dr. J. Schütz died after a long illness in Vienna. He had been head of the hospital in Baden, where he undertook to harmonize the scientific requirements in the treatment of nephritis, rheumatism and gout with the opportunities offered by warm sulphur springs. During the war he inaugurated a new method for the treatment of nephritis, and impressed authorities with the necessity for a "special kidney hospital," of which he became director. He died of cancer of the intestine, aged 47.

Fiftieth Birthday of Gustav Alexander

Professor Alexander, the otologist, was recently honored on his fiftieth birthday. It is most unusual that this age is selected for celebration, for at 50 one is still a young man. But, as a pupil remarked, "the last half century of Alexander's life has been so filled with achievement it is necessary to pause and review the work done." Among the congratulations received, was a hearty welcome from representatives of the American Medical Association of Vienna. He has always been one of the chief lecturers of this institution, and his classes are always filled.

Dr. Fröschels on Stammering

In a lecture on stammering, delivered before the medical society, Docent Dr. Fröschels said that the available evidence now points to micro-organic changes in the central nervous system. At first, the condition is independent of volition, but later psychic factors intervene. In all cases there are spasms of the muscles of speech, and later on other muscles are affected (of the legs and arms). Spasms of the respiratory muscles are always present, but stammerers never have pains when stammering, in spite of their "painful" endeavors to talk. Adults often start stammering when embarrassed. After lasting many years, stammering is often hidden by careful, slow speech, but the concomitant gestures remain (making a fist in the pocket). The fear to disclose their defect often leads to derangement of the current of thought, but this may be overcome by energy. Gymnastic exercises do not give good results. The patient must be convinced that he will be able to pronounce the "impossible" syllables or words, and he must be taught that natural talking is a matter of no importance at all; autosuggestion is paramount. The patient is shown that there is no principal difference between vowels and consonants as regards their logoplegic value, and that it is easy to form a series of letters by slightly changing the position of the tongue and lips. It is also important to get rid of the feeling of inferiority, so often encountered among stammerers, and when the patient finds he is not inferior, his defect quickly vanishes. As regards prophylaxis, the lecturer emphasized the necessity of correct teaching of speaking in childhood.

The Danger from Illuminating Gas

Accidents due to the escape of gas from pipes in the walls of dwellings have become alarmingly frequent of late. The board of health has ordered an investigation into the cause of such accidents. Apart from mechanical reasons—faulty pipes, severe frost, bursting of water pipes and damage to brick work—the gas itself has changed in composition since the war. Formerly the percentage of carbon monoxid never exceeded 11 in Vienna illuminating gas, its caloric value was over 5,000, and only the best coal was used to make it; now we use gas of only 4,000 calories, it is decarburetted to obtain

the benzene, more water-gas is added, and the carbon monoxid content is 22 per cent. Now, the odor of gas, so peculiar, is less pronounced. Gas escaping in well ventilated rooms is soon detected, but in localities where tobacco smoke, steam or other vapors are present (kitchens, dining rooms, lounges, hotel halls, restaurants) it may remain unnoticed. In the first eleven months of 1923 in Vienna, 246 instances of gas escaping by accident were reported, with sixty-nine fatalities, to which must be added attempts at suicide, to which only private practitioners were called. To avert the danger arising from escaping gas, it has been suggested to add to the gas a small quantity of a volatile mercaptan. Such substances have a peculiar and most disagreeable odor, and are not absorbed by water or earth. The bad odor is not persistent or dangerous, and it is apt to arouse sleeping persons. One gram of ethylhydrosulphite—one of these substances—is sufficient to odorize about 6,500 cubic feet of gas. We have no law requiring the addition of such safeguards to the gas, but the board of health has advised the municipal gasworks to do so.

Death of Professor Königstein

Professor Leopold Königstein, whose name is connected with the first use of cocain as an anesthetic in ophthalmology, died recently, aged 74. At an early age, he had a leading position among oculists in this country, and his papers on "blennorrhea neonatorum," "paralysis of ocular muscles" and "reactions of the pupil," are well known. He did considerable work on the subject of correction, and published numerous papers on lenses and the ophthalmoscope. Of late years, he devoted his energies chiefly to social work among physicians, and to charitable institutions for medical men.

PRAGUE

(From Our Regular Correspondent)

Feb. 1, 1924.

Glanders

The medical profession of the Czechoslovak Republic has been greatly alarmed by seven deaths due to an infection with malleus within a short period. The original four cases occurred in persons who had been taking care of a horse that was sick with malleus. The first professional infection took place when a necropsy was performed on the horse by the assistant of the school of veterinary medicine in Brno, Dr. M. Derbek. When Dr. Derbek died after a rather prolonged sickness, the suspicion of a chronic infection with malleus was aroused, and blood smears and inoculations were performed during the necropsy by Dr. J. Solc, the assistant of the institute for pathologic anatomy in Prague. Shortly after that, Dr. Solc came down with an acute infection with malleus and died within a few days. The death toll of this dangerous malady was not exhausted yet, because in a short time the death of Dr. J. Purkrabek, assistant director of the institute of serology in Ivanovice, was announced. The deaths are the more significant in that all the three victims were well known in professional circles as renowned investigators. This unfortunate experience emphasizes again the well known danger of laboratory infection with malleus, because it can be presumed that the infections occurred in spite of necessary precautions, which had probably been taken by these experienced investigators.

Dr. Jerie Becomes Professor of Obstetrics

Dr. Joseph Jerie has been appointed to the professorship of obstetrics and gynecology at the medical school in Prague. The chair of obstetrics and gynecology has attained considerable reputation in the scientific world because of the achievements of its occupants. The father of the Czech school of obstetricians can be called Dr. Charles Pawlik, who was especially well known to American physicians. He was the first to demonstrate catheterism of the ureters in women. His successor, Dr. Vaclav Pitha, was an equally skilled surgeon, and deserves the credit for having developed the department of gynecology at the Prague Medical School into one of the best equipped institutions of its kind. Prof. J. Jerie, who is also a pupil of Pawlik, has already attained a considerable reputation as a surgeon, investigator and teacher.

BERLIN

(From Our Regular Correspondent)

Jan. 26, 1924.

The Conflict Between Physicians and Health Insurance Societies

January 21, the executive committee of the Physicians' League of Greater Berlin sent the following letter to the physicians of Berlin: "Now that a successful outcome of the struggle is assured, the medical federation of Greater Berlin, at the instance of the executive committee of the Hartmann League, has informed the leagues of health insurance societies, and independent health insurance societies which stand in contract relation with it, that it is ready to resume work with the health insurance societies on terms of the previous contract, and that a reply would be expected by January 25. The health insurance societies, by virtue of the decree, dated Oct. 30, 1923, will be compelled to accept this offer and they will be forced to pay for the services of the physicians. In case the health insurance societies should claim the right to refuse, the committees of control are bound by pronouncement of January 5 of the federal minister of labor, to adopt measures to enforce the previous contracts. The health insurance societies of Berlin have been summoned to appear, January 25, before the *Oberversicherungsamt* to give an account of the care taken of their members since relations with the panel physicians were interrupted. The fact is, that care has been entirely inadequate; for, aside from a few dispensaries in outlying districts and one in the center of the city, manned mostly by recent graduates, they have no physicians on contract. They are trying, at the eleventh hour, to make contracts with physicians so that the *Oberversicherungsamt* may not have legal grounds to interfere. With this in view, they recently invited a number of physicians to convene with them. It is said that a committee plans to issue an appeal hoping that physicians in large numbers will be induced to leave the medical federation of Greater Berlin and found a society of panel physicians. This last despairing attempt of the *Krankenkassen* to create a breach in the united front of physicians of Greater Berlin will certainly fail, as have previous endeavors of that nature. The small number of physicians who have answered the beck and call of the health insurance societies are those who, for some time, have been dependent on them. It is not likely that they will influence the body of Berlin physicians; it is more probable that their action will deter physicians who are loyal to their profession and to the organization to which they belong."

When representatives of the health insurance societies appeared, January 25, they endeavored to show how they had organized assistance for their members since the disruption occurred and what their plans were for the future. The medical representatives doubted their statements somewhat, but even if correct they could prove by numerous examples that the care of the insured members must have been inadequate. During the discussions, representatives of the *Oberversicherungsamt* and the *Versicherungsamt* of Berlin made the statement that through the decree of Oct. 30, 1923, the so-called Berlin Agreement had the force of law. According to this agreement, the health insurance societies must accept the physicians' offer to work in accord with the old contracts until a new decree is promulgated. The committee of con-

trol informed the physicians that it would encourage the societies to accept their offer if it were made binding. Thereupon the physicians recorded in their minutes that they were ready to resume work with the *Krankenkassen* on the conditions of the old decree.

The Minimum Mortality in Europe

According to Oberregierungsrat Roesle of the public health bureau, the year 1921 was peculiar from a meteorologic standpoint. There was an extremely mild winter, and a very warm spring with the highest May temperatures known. An unusually hot summer and mild autumn followed. Except for a short spell in December, mild temperature continued to the end of the year. It is not surprising, therefore, that the effect on mortality of the mild temperature should be noted in a large part of Europe. The statistics for twenty European countries show that in all, except France, the mortality in 1921 was the lowest ever recorded. This minimum ranges from 21.5 for Spain to 11.1 for the Netherlands and Denmark, per thousand population. In some countries 1912 and 1913 showed the lowest mortality; in 1913, the extremes were in Spain (22.2) and in the Netherlands (12.3). In comparison with that year, in 1921 the lowest mortality rate decreased more than the highest rate. The infant mortality, also, in most European countries, in spite of a hot summer, decreased. European countries arranged in a series according to mortality rates were much the same as in 1913, which points to a comparatively uniform effect of season on mortality throughout Europe. The difference between the mortality of 1921 and that of 1913 was the greatest in Ireland (2.9), Finland (2.2), Scotland (2.1), Norway (1.8) and England (1.7), and the least in Germany (1.1), Belgium (0.7) and Spain (0.7). France reached its mortality minimum in 1920 (17.3). In comparison with 1913, in which year the mortality rate was 17.8 (17.6 including Alsace-Lorraine), its mortality rate for 1921 was almost the same.

New Sanitary Regulation

The director of the police department of Berlin has issued an order which forbids in courts adjoining dwellings, and on balconies and windows that open on courts, the beating of upholstered furniture, beds, carpets, etc., except on Friday from 8 a. m. to 5 p. m., and Saturday from 8 a. m. to 1 p. m. In the week preceding high festivals, beating of the foregoing articles will be permitted on the three days preceding the first holiday, from 8 a. m. to 5 p. m. Violations of this order will be punished by a fine not exceeding 150 gold marks or a jail sentence not exceeding fourteen days. A number of suburbs of Greater Berlin have been exempted from the order.

Marriages

HARRIET D. COVERT, Jerry City, Ohio, to Mr. O. T. Battles of Chardon, at St. Petersburg, Fla., recently.

EDGAR LONG, South Vienna, Ohio, to Miss Mary Elizabeth Saylor of Williamsport, Pa., Dec. 22, 1923.

HENRY JOHN OTTO to Miss Wilhelmine Anna Eckendorff, both of New Orleans, January 16.

JAMES B. VAIL, New York Mills, Minn., to Miss Verly Wheadon of Balaton, January 1.

MAURICE I. MILLER, Troy, Ohio, to Miss Izola Conklin of Columbus, Dec. 24, 1923.

JACOB SPITZ, Boston, to Miss Rose Evelyn Rossen of Peabody, Mass., recently.

PHILIP A. RILEY to Miss Loretta O'Meara, both of Jackson, Mich., February 14.

IRVING SOLON SCHNEIKRAUT to Miss Bessie Siegal, both of Brooklyn, recently.

Deaths

John F. Fitzgerald, New York; Albany (N. Y.) Medical College, 1886; medical superintendent of the department of public welfare; formerly superintendent of Kings County Hospital, Brooklyn, and the Rome (N. Y.) State Custodial Asylum, on the staff of the Binghamton (N. Y.) State Hospital; aged 63; died, February 5, of carcinoma of the prostate.

Joseph Julio Henna ● New York; Medical Department of Columbia College, New York, 1872; formerly on the staffs of the Bellevue and French hospitals; physician to the Little Sisters of the Poor, and the Orphan Asylum of St. Vincent de Paul; a Chevalier of the Legion of Honor of France; aged 72; died, February 3, following a long illness.

Earnest J. Lutz ● Kansas City, Kan.; St. Louis (Mo.) College of Physicians and Surgeons, 1891; formerly associate professor of internal medicine at the University of Kansas School of Medicine, Rosedale; at one time chairman of the board of health; aged 58; died, February 6, at the Bethany Hospital, of acute articular rheumatism.

Anderson T. Spear, Newark, Ohio; Medical College of Ohio, Cincinnati, 1866; member of the Ohio State Medical Association; past president of the Licking County Medical Society; delegate from Ohio to the International Medical Congress in London, 1881; formerly city health officer; aged 81; died, February 2, of cerebral hemorrhage.

William O'Reilly Bradley ● Galesburg, Ill.; University of Buffalo (N. Y.) Department of Medicine, 1883; formerly president of the Knox County Medical Society, and mayor of Galesburg; on the staff of the Galesburg Hospital; aged 62; died suddenly, January 30, of edema of the lungs.

Theodore W. Rankin ● Columbus, Ohio; Columbus Medical College, 1877; formerly emeritus professor of medicine at the Ohio State University College of Medicine, Columbus; at one time on the staffs of the Children's and Grant hospitals; aged 69; died, February 4, of cerebral hemorrhage.

George Elmer Bair, Braddock, Pa.; Western Reserve University School of Medicine, Cleveland, 1886; Jefferson Medical College of Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; aged 60; died, January 26, at his home in Edgewood, of nephritis.

William Fletcher McNutt, San Francisco; University of Vermont College of Medicine, Burlington, 1862; L.R.C.P. and S., Edinburgh, Scotland, 1865; Civil War veteran; aged 84; died, January 29, at the Morton Hospital, of injuries received when struck by an automobile.

Louis Zephirin Normandin, New Bedford, Mass.; Victoria University Medical Department, Toronto, Ont., Canada, 1879; formerly member of the school board, the city council, and the board of health; aged 72; died, January 20, of cerebral hemorrhage.

Edward Laurence Lyons, Troy, N. Y.; Medical Department of the University of the City of New York, 1886; member of the board of health; on the staff of the Troy Catholic Male Orphan Asylum; aged 60; died suddenly, February 2.

Milton Powel, New York; Hahnemann Medical College of Philadelphia, 1890; also a dentist; on the staffs of the Flower Hospital, and the Fifth Avenue Hospital, where he died, aged 69; February 2, following an operation.

John Wilson Williams, Nashville, Mo.; Keokuk Medical College of Physicians and Surgeons, Keokuk, Iowa, 1902; served in the M. C., U. S. Army, during the World War; aged 49; died, January 29, of pneumonia.

Marcus Breckenridge Tarleton, Jeanerette, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1886; member of the Louisiana State Medical Society; aged 65; died, January 18.

E. Arthur Carr, Lincoln, Neb.; Hahnemann Medical College, Chicago, 1896; formerly secretary of the state board of health; aged 51; died, January 25, of septicemia, following amputation of one of his legs.

Jacob Patrick Shacklette, Louisville, Ky.; Kentucky University Medical Department, Louisville, 1904; served in the M. C., U. S. Army, in France, during the World War; aged 51; died, February 3.

Nathaniel Brewster, Ridgeway, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1873; Victoria University Medical Department, Toronto, 1873; aged 86; died recently of senility.

Walter Temple Goodale, Saco, Me.; Medical School of Harvard University, Boston, 1887; aged 72; died, February 2, at the Massachusetts General Hospital, Boston, of arteriosclerosis.

Thomas Bernard Davies, Ottawa, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1884; for seven years coroner of Hull; aged 66; died suddenly, January 11.

George Henry Hansen ● Chicago; Rush Medical College, Chicago, 1896; specialized in otology, laryngology and rhinology; aged 60; died, February 11, at Beloit, Wis., of pneumonia.

Arthur Fletcher Davis, North East, Pa.; College of Physicians and Surgeons, Boston, 1900; member of the Medical Society of the State of Pennsylvania; aged 53; died recently.

Leonidas C. Ross, Springfield, Mo.; Missouri Medical College, St. Louis, 1891; member of the Missouri State Medical Association; aged 63; died, February 4, in a local hospital.

Ferdinand S. Nevling, Clearfield, Pa.; Baltimore (Md.) Medical College, 1883; member of the Medical Society of the State of Pennsylvania; aged 76; died, Dec. 21, 1923, of senility.

Alexander McKillop, Dutton, Ont., Canada; Trinity Medical College, Toronto, 1884; L.R.C.S., Edinburgh, and L.R.C.P., London, England, 1885; aged 67; died suddenly, Dec. 17, 1923.

Charles Sylvester Andrews, Cleveland; Western Pennsylvania Medical College, Pittsburgh, 1897; member of the Ohio State Medical Association; aged 52; died, January 28.

Herman Lincoln Gifford, Brooklyn; Long Island College Hospital, Brooklyn, 1891; member of the Medical Society of the State of New York; aged 57; died, February 4.

Henry Blankenhorn ● Orrville, Ohio; Western Reserve University School of Medicine, Cleveland, 1890; also a druggist; aged 67; died, Dec. 20, 1923, of pneumonia.

Charles Miller Strickler ● Lebanon, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1890; aged 56; died suddenly, January 28, of heart disease.

Charles Lewis Hildreth, Southampton, N. Y.; Long Island College Hospital, Brooklyn, 1889; aged 59; died, February 5, of diabetes mellitus and heart disease.

Herbert B. Crommett ● Amery, Wis.; University of Minnesota Medical School, Minneapolis, 1896; aged 50; died, February 6, of cerebral hemorrhage.

George Harvey McGeary, Wilkinsburg, Pa.; New York Homeopathic Medical College and Hospital, 1888; aged 60; died, January 25, of heart disease.

Sylvester Green Hunter, Sandy Hook, Ky.; Louisville (Ky.) Medical College, 1889; aged 78; died recently, of cerebral hemorrhage and arteriosclerosis.

Cullen H. Whipple, Barberton, Ohio; Hahnemann Medical College and Hospital, Chicago, 1896; aged 63; died, Dec. 15, 1923, following a long illness.

Charles Norman Hazelton, Morrison, Ill.; Hahnemann Medical College and Hospital, Chicago, 1875; aged 76; died, January 30, of heart disease.

George Albert Routledge, Lambeth, Ont., Canada; New York Homeopathic Medical College, 1875; aged 68; died, January 3, of heart disease.

Bert Emory Fahrney ● La Salle, Ill.; Chicago Homeopathic Medical College, 1897; aged 50; was found dead in bed, February 1, of heart disease.

Henry Hugh Bryan, Logan, W. Va.; Jefferson Medical College of Philadelphia, 1882; aged 71; was killed, January 27, when struck by a train.

Irvin Johnson Maggard, Wichita, Kan.; St. Louis (Mo.) Medical College, 1877; Civil War veteran; aged 82; died, February 4, of senility.

John A. McGill, Chicago; Cleveland (Ohio) University of Medicine and Surgery, 1874; aged 81; died, February 9, at San Diego, Calif.

Edward Carl Galsgie, Reno, Nev.; California Eclectic Medical College, Los Angeles, 1914; aged 40; died, January 26, of septicemia.

Owen P. Martin, Belknap, Ill.; American Medical College, St. Louis, 1878; aged 77; died, January 27, of heart disease.

Hiram C. Dissinger, Canal Fulton, Ohio; Medical College of Ohio, Cincinnati, 1878; aged 69; died, Dec. 17, 1923.

George Jamison Martz ● Indianapolis; Medical College of Ohio, Cincinnati, 1891; aged 56; died, Dec. 20, 1923.

Robert Peter, Chicago; Jefferson Medical College of Philadelphia, 1881; aged 64; died in December, 1923.

Correspondence

WHERE SHALL WE PLACE OUR CADUCEUS EMBLEM?

To the Editor:—The increasing use and recognition of the caduceus as an emblem of the medical profession, and the presence of cold weather, have led me to make a suggestion concerning the proper placing of this distinctive sign on the physician's motor car.

As at present supplied by the American Medical Association, the emblem is accompanied by three long metal pins which are to be used in holding it tightly against the radiator.

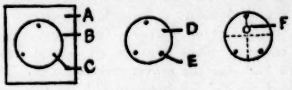

Fig. 1.—*A*, metal; *B*, outline of emblem; *C*, holes marked; *D*, metal disk; *E*, holes punched; *F*, hole for center bolt.

When the temperature hovers around the freezing point and it becomes necessary to employ a so-called winter front or the old fashioned radiator and hood cover, the emblem is entirely hidden. As a rule, when the physician's car is standing in a time limit parking zone, parking rules are stretched a point when this well known symbol is exposed. Some of these cold weather helps cover the whole front of the radiator, blotting out the sign whether running or at rest.

The plan I have adopted has been in use on two cars in my immediate family during the last two years. It is appli-

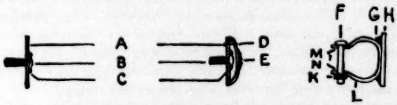

Fig. 2.—Cross-sections: *A*, disk; *B*, bolt; *C*, solder; *D*, small brass nut and screw; *E*, emblem; *F*, bolt; *G*, solder; *H*, disk; *K*, nut; *L*, curved metal; *M*, *N*, holes.

cable only to those cars having a cross rod or bar between the front headlights. I made the necessary parts; but if one does not have the mechanical aptitude or has not the time, a tinsmith will do the work for a small sum.

The emblem is placed on a piece of thin metal (zinc, sheet iron, copper or any other metal to which solder will adhere) and its outline taken, openings being marked, at the same time, of the three holes through which the pins were originally intended to go. The metal is now cut circular with shears, just inside the line already drawn. In this way the

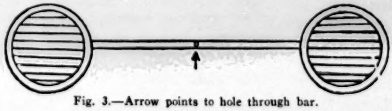

Fig. 3.—Arrow points to hole through bar.

disk produced is slightly smaller in circumference than the emblem (Fig. 1 *D*). Holes are now punched through the disk at the markings so as to correspond to those on the emblem (Fig. 1 *E*). The disk is now divided into quarters and a hole drilled slightly above the true center, large enough to admit the passage of a small 1 inch bolt (Fig. 1 *F*). The hole, so placed, rather than in the exact center, tends to keep the sign in its original upright position should it ever become loosened.

The head of a 1 inch bolt is now soldered to the disk, the threaded portion projecting through the hole as would appear in the cross-section (Fig. 2 *B*). The emblem is attached to the disk by three small brass bolts and nuts (Fig. 2 *D*);

the projecting ends of these tiny bolts are cut off as soon as they are made thoroughly tight, and the ends are spread by being gently hammered. One should avoid striking too hard a blow, so as not to crack the enamel.

A hole suitable for the center bolt to pass through is drilled in the exact center of the crossbar between the headlights (Fig. 3). The emblem is bolted in place by means of a nut and lock washer; it is perfectly firm and will remain so

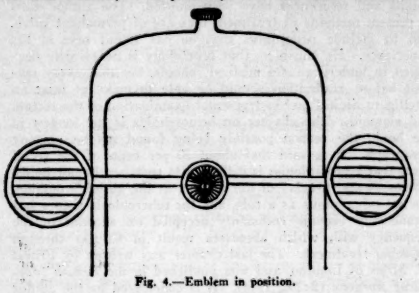

Fig. 4.—Emblem in position.

(Fig. 4). The emblem is now free from all encumbrances, summer or winter; in fact, its position is much more conspicuous than if it were attached to the radiator itself.

Many cars have rods rather than bars between the headlights, and if these rounded rods are too small to drill through, a piece of metal may be soldered to the posterior side of the disk, with holes at *M* and *N* (Fig. 2) through which to pass a bolt. A nut tightened at *N* will fix the completed emblem firmly to the rod.

JAMES H. MENDEL, M.D., Philadelphia.

AIDING GERMAN INTELLECTUALS

To the Editor:—The New York *Times*, February 6, contained a letter from Mr. Paul R. Reynolds in which it was stated that one of the last acts of President Woodrow Wilson was to promise to help the German intellectuals in their present distress. Mr. Reynolds, in admiration of Mr. Wilson's magnanimity, offers a contribution of $100 in his memory to a newly formed "Society for the Relief of German Intellectuals," of which former Ambassador James W. Gerard is president and Edward R. Stettinius, of 23 Wall Street, New York, treasurer. I have not been able to learn whether this society will include the medical profession among its beneficiaries. From reports made by American physicians who have visited Germany recently, it would seem that the medical profession is the most unfortunate of all professions. Because of lack of food and coal, many sanatoriums, public and private, had to be closed, and the patients, already insufficiently nourished, had to be returned to their former homes. As a result, the morbidity and mortality from tuberculosis have increased considerably. According to Dr. Haven Emerson, who has just returned from Germany, in some of the larger cities with a combined population of 17,000,000, there were more deaths from tuberculosis in the first nine months of 1923 than in the entire year of 1921, and 4,000 more deaths in 1922 than in 1921.

Mr. Gerard's organization is, to my knowledge, the fourth society in this country which aims to come to the relief of the German intellectuals. There is, first, the "Emergency Society for German and Austrian Science and Art," of which Prof. Franz Boas of Columbia University is the president and Mr. James Speyer, New York, the treasurer. Secondly, "American Aid for German Medical Science," with Dr. Ludvig Hektoen of Chicago as president and Dr. William F. Petersen as treasurer. Thirdly, there is the "Association for the Relief of Needy Physicians of Central and Eastern Europe," with Prof. William H. Welch of Baltimore as honorary president, Dr. Max Einhorn as chairman of the New York Section and Mr. Henry Steneck as treasurer. Besides these, there is a Dr. Henry Loeffler of Vienna, who is going about New York City and the country at this time collecting funds for the relief of the suffering physicians of Austria. On inquiry at the Austrian Consulate in New York and of the chargé d'affaires of Austria in Washington, I was told that Dr. Loeffler had presented a letter, addressed to himself by the Association of German Physicians in Austria, giving him authorization to collect funds, but that neither the legation nor the consulate had been directly informed of his mission by the society named.

I cannot help thinking that in these manifold activities, striving to come to the relief of the intellectual class of Germany and Austria, there is too great a multiplication of effort which entails increased expense in collecting and handling the funds, all to the detriment of those for whom these benevolent works are inaugurated. Would not a uniting of all these societies result in a more substantial, economic, and more judicious distribution of the funds?

S. ADOLPHUS KNOPF, M.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"WHEN IS GONORRHEA CURED?"

To the Editor:—In Queries and Minor Notes (THE JOURNAL, Nov. 17, 1923, p. 1712; Jan. 12, 1924, p. 148), replies to this question were given. There are further questions with regard to which, as a medical student, I have had several arguments, and am desirous of an unbiased opinion: 1. Would the test mentioned by you as a feasible way of securing for examination the contents of all the glands, lacunae of the urethra, etc., demonstrate beyond all question whether or not there are any gonococci in the system apart from the urethral tract? 2. Is it true that a persistent discharge from the urethra may not be gonorrheal, although the patient may have had this disease at one time, which even involved the testes? 3. Are gonococci of a more infectious nature in an acute case than in a case of a latent nature? 4. Does nonspecific urethritis follow specific urethritis, or is it entirely foreign to gonorrhea?

J. C. MAVIS, Pontiac, Mich.

ANSWER.—1. Repeated negative tests of the secretions from these glands would be good evidence that the lower urinary tract is free of gonococci; however, this would not rule out the possibility of organisms being present in other localities, such as the genital tract or joint membranes.

2. The patient may have a persistent discharge from the urethra following a gonococcus infection in which gonococci cannot be found. This discharge is sometimes due to other organisms, such as the ordinary pus cocci; but such a discharge should be looked on with suspicion, and an exhaustive search should be made for gonococci.

3. Probably not; the germs from a latent case develop very readily when implanted in a new soil.

4. Nonspecific urethritis may follow a gonococcus infection, but is usually a primary infection with a short incubation period, and as a rule self-limited, disappearing in a few days.

PILOCARPIN AS SUDORIFIC

To the Editor:—Should pilocarpin be employed for its sudorific properties in the treatment of uremic conditions? Please omit name.

A. A. W., M.D., Oxford, N. C.

ANSWER.—Pilocarpin is not as useful as heat for diaphoresis in uremia because: 1. Pilocarpin is not merely a diaphoretic; it sometimes causes annoying salivation, occasionally an alarming condition resembling edema, and depresses the circulation more than heat. 2. In renal congestion, the determination of blood to the skin is probably of greater importance than abstraction of fluid or of solid material by means of the sweat; and heat is much more efficient in the production of skin hyperemia.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, April 1. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

ALASKA: Juneau, March 4. Sec., Dr. Henry C. De Vighne, Juneau.

CONNECTICUT: Hartford, March 11-12. Sec., Reg. Bd., Dr. Robert Lee Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, March 11. Sec., Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

CONNECTICUT: New Haven, March 11. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, April 8. Sec., Dr. Edgar P. Copeland, Washington.

IDAHO: Boise, April 1. Director, Mr. Charles Laurenson, Boise.

MAINE: Portland, March 11-12. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 11-13. Sec., Dr. Charles E. Prior, 144 State House, Boston.

MINNESOTA: Minneapolis, April 1-3. Sec., Dr. Thomas McDavitt, 539 Lowry Bldg., St. Paul.

MONTANA: Helena, April 1. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

NEW HAMPSHIRE: Concord, March 13-14. Sec., Dr. Charles Duncan, Concord.

OKLAHOMA: Oklahoma City, April 8-9. Sec., Dr. J. M. Byrum, Shawnee.

RHODE ISLAND: Providence, April 3-4. Sec., Dr. B. U. Richards, State House, Providence.

UTAH: Salt Lake City, April 1. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

Michigan June Examination

Dr. Beverly D. Harison, secretary, Michigan Board of Registration in Medicine, reports the written examination held in Ann Arbor, June 12-14, 1923. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. One hundred and twenty-seven candidates were examined, all of whom passed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
The General Medical College	(1923)	83.7
University of Illinois	(1923)*	84, 86.7
Johns Hopkins University	(1922, 2)	82.6, 83.5, (1923, 2) 84.3, 84.3
Harvard University	(1920)	86.6, (1923, 3) 82.4, 82.9, 88.4
University of Michigan Medical School	(1922, 2)	84.6, 88.4, (1923, 111) 81.5, 81.5, 81.6, 81.9, 82.1, 82.2, 82.6, 82.9, 83, 83, 83, 83.1, 83.2, 83.3, 83.3, 83.3, 83.4, 83.4, 83.5, 83.5, 83.5, 83.5, 83.6, 83.6, 83.7, 83.7, 83.8, 83.8, 83.9, 83.9, 83.9, 83.9, 83.9, 83.9, 84, 84, 84, 84.1, 84.2, 84.3, 84.3, 84.3, 84.3, 84.3, 84.4, 84.4, 84.5, 84.5, 84.5, 84.5, 84.6, 84.7, 84.7, 84.7, 84.7, 84.7, 84.8, 84.8, 84.8, 84.9, 84.9, 84.9, 84.9, 84.9, 85, 85, 85.1, 85.2, 85.2, 85.3, 85.3, 85.3, 85.3, 85.3, 85.3, 85.4, 85.4, 85.4, 85.4, 85.4, 85.5, 85.5, 85.5, 85.5, 85.6, 85.6, 85.6, 85.6, 85.8, 85.8, 85.8, 85.8, 85.9, 85.9, 85.9, 86.1, 86.2, 86.2, 86.2, 86.3, 86.5, 86.6, 86.8, 86.8, 86.8, 86.9, 87.2, 87.6, 87.6, 87.6, 87.9
University of Pennsylvania	(1921)	85
McGill University Faculty of Medicine	(1922)	84.3
University of Toronto Faculty of Medicine	(1922)	83.4

* These candidates have finished their medical course and will receive their M.D. degrees on completion of a year's internship.

Georgia October Examination

Dr. C. T. Nolan, secretary, Georgia State Board of Medical Examiners, reports the written examination held at Atlanta, Oct. 9-11, 1923. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. Six candidates were licensed by reciprocity. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
University of Arkansas	(1918)	81.8
Howard University	(1923)	97.5
Georgia College of Eclectic Medicine and Surgery	(1916)	89.8
Rush Medical College	(1919)	91.7

FAILED College	Year Grad.	Per Cent.
University of Jurjev, Russia	(1916)*	65.2

LICENSED BY RECIPROCITY College	Year Grad.	Reciprocity with
Medical College of Alabama	(1895)	Alabama
University of Georgia	(1890)	N. Carolina
Tulane University	(1920)	Louisiana
Johns Hopkins University	(1905)	N. Carolina
University of Maryland	(1919)	Maryland
Lincoln Medical College	(1897)	Nebraska

* Graduation not verified.

Book Notices

A MANUAL OF PROCTOLOGY. By T. Chittenden Hill, Ph.B., M.D., F.R.C.S., Instructor in Proctology, Harvard Graduate School of Medicine. Cloth. Price, $3.25. Pp. 279, with 84 illustrations. Philadelphia: Lea & Febiger, 1923.

In this book controversial matter, repetitions, irrelevant details and references have been omitted. The author aims to present methods of treatment that are of permanent value, and to include procedures that he has found best in his experience. He considers that proctology is necessarily neglected in undergraduate medical schools, but that every student before graduation should be able to make at least an intelligent digital and instrumental examination of the rectum and sigmoid. The chapter on hemorrhoids is the longest in the book, the reason possibly being found in the opening paragraph. It is said that about 30 per cent. of the rectal cases that a proctologist is called on to treat are hemorrhoids. Abscesses and fistulas of the rectum, in the author's opinion, are not tuberculous as a rule, and the tuberculosis theory has erroneously become commonly accepted on account of the frequency with which abscesses result in fistulas through improper treatment. The last chapter was written by Ernest W. Miles of London, and was published in the *British Journal of Surgery* (**2**:292, 1914). It is considered by the author the best and most complete description of the technic of the abdominoperineal operation for cancer of the rectum that he has ever read.

CONDUCTION AND INFILTRATION ANESTHESIA. By Mendel Nevin, D.D.S., Oral Surgeon, Greenpoint Hospital. Cloth. Price, $5. Pp. 313, with 189 illustrations. Brooklyn: Dental Items of Interest Publishing Company, 1923.

The title is somewhat misleading, as one might suppose that the volume covered the entire field of local anesthesia, whereas the author limits himself to a description of local anesthesia as applied to the trifacial nerve and its branches. He is a dentist, and has covered the subject of local anesthesia only so far as it relates to dental surgery. The anatomy of the trifacial nerve is given with the greatest detail, and the subject is profusely illustrated. The method of preparing the solutions, the points of injection, and the technic are all clearly presented. The work is valuable, not only to the dentist, but also to the general and special surgeon operating about the face or head under local anesthesia.

KRIEG UND FRIEDEN IM LICHTE DER MEDIZIN. Entwurf einer medizinischen Soziologie. Von Theodor Huzella, Professor an der Universität Debreczen. Paper. Price, 2 francs, 70 centimes. Pp. 143. Berlin: S. Karger, 1923.

This little book is something more than an academic philosophy; it endeavors to establish the thesis that society, like man, is a composite of many specialized units bound together by common interest in the struggle for existence and the opportunity for the performance of individual function. Health and sickness in man are both indications of life; the former of harmonious cooperation between the various specialized cells of which he is built, the latter of the discord that results from changes in these individual units. The counterparts in the social organism are peace and war. It is important to realize that the latter is not disease, but is rather the reaction of the organism to changes that have occurred in the individual men of which it is compounded. War, like fever, is an effort at repair; it is therefore useless to fight war; the only hope lies in preventing the changes in individual men that bring about this kind of reaction. This is a problem of individual rather than group study. Interesting comparisons are made between the loss of specialization in parenchymal cells and the encroachment of the strangling force of connective tissue in disease of the body, on the one hand, and of the degradation of individuality and the growth of arbitrary authority in diseases of the social organism that lead to war, on the other. The strength of a peaceful society depends on the strength of individuality in its members; the weakness of a nation at war rests on the sacrifice of indi-

viduality and control by primitive and arbitrary force. Just as today in medicine we recognize that constructive hygiene is of greater importance than the treatment of disease, so in social welfare there must be developed a conception of positive social health as contrasted with the usual and necessary efforts to remedy the effects of social ill health. If it is correct to say that war is the outcome of changes in the individual members of society, there is need to study the nature and causes of these changes. By reason of his training, ideals and interest in the individual primarily, the physician is the logical person to undertake these investigations. The problems concerned are identical in principle with those of medicine, and are susceptible of definition and elucidation by similar methods. Even though one may feel at times that the comparisons of the author are somewhat stretched, the fundamental views expressed are eminently worth consideration, and the book can be heartily recommended to the consideration of thinking physicians.

HEART RECORDS, THEIR INTERPRETATION AND PREPARATION. By S. Calvin Smith, M.S., M.D. Cloth. Price, $7. Pp. 313, with 128 illustrations. Philadelphia: F. A. Davis Company, 1923.

This volume is concerned with the making and interpretation of graphic records of the heart mechanism, by means of the electrocardiograph and the polygraph. The first 119 pages is devoted to a consideration of the interpretation of electrocardiographic records, with a discussion of the clinical significance of the conditions as expressed in the records. Since about half of the space is taken up with illustrations, little remains for text in which to cover a wide and important field. The clinical significance of auricular fibrillation is disposed of in two thirds of a page of large type, generously spaced, and with wide margins. The theory of circus movement is explained in a paragraph in which no mention is made of the contributions of Lewis and his co-workers. Such brevity is not only not very illuminating to the reader who may be depending on this book for his sources of information, but may be misleading. There are no references to other literature or sources, an omission especially to be regretted in a work which gives only an outline of certain important features, and in which reference to more detailed accounts would be of distinct advantage to the reader. There are occasional places in the text to which exception might be taken, but these are of no great importance. It would be better if this portion of the volume were given over solely to the interpretation of the records, and their clinical significance left to already published works, or taken up more fully elsewhere. In the second portion there is a good account of the electrocardiograph. The instrument is described in detail and with clearness, and directions are given for its care and use. The technic of taking the records is given, and many of the difficulties encountered are considered. The third portion is taken up with a description of the polygraph, the technic of its use, and directions for reading the records obtained. This should be of value to the uninitiated. The volume is profusely illustrated, and should be useful to those wishing to obtain a reading knowledge of electrocardiograph and polygraph records.

PHYSIOLOGIE OBSTÉTRICALE, NORMAL ET PATHOLOGIQUE. Par H. Vignes, Accoucheur des Hôpitaux de Paris. Préface du Professeur A. Couvelaire. Paper. Price, 22 francs, net. Pp. 456, with illustrations. Paris: Masson et Cie, 1923.

Since the war, no large book on obstetrics has appeared in France. This work is not a textbook in the usual sense, though students, investigators and practitioners alike will gain real benefit from reading it. The title is, indeed, descriptive —obstetric physiology, and its pathologic variations are well presented. The book evidences on every page the wide reading of its author. No important contribution in any language seems to have been overlooked. American literature is more freely represented than in any other foreign book, one American author being quoted nineteen times, although, naturally, French authors are most in evidence. The author adheres closely to his plan. After describing the physiologic changes in all the organs during pregnancy, labor and the puerperium, he devotes a considerable, but less number of pages to the pathology, and from both the reader will readily draw the indications for treatment and learn the physiologic method of approach. There is an excellent summary of all the work done on the physiology of the placenta, and the symbiologic and biochemical relations between the mother and fetus. Even though most of this work is inconclusive or, at least, contested by later experimental research, one derives satisfaction from reading the succinct summaries of the immense mass of literature on these subjects. For the student who desires to learn what has been done before in the domain of experimental physiology, and in the applied principles of pathologic physiology, the book will be invaluable and a starting point for further investigation. The chapter on the endocrine glands is especially to be commended. The rôle of the thyroid in preventing abortion is stressed, the author having done much good experimental work on the subject. The changes in the metabolism during pregnancy, labor and the puerperium are clearly presented. The mechanism of labor is taught in the classic manner, and, aided by the clarity and incisiveness of the French language, one easily gains a good idea of the movements imparted to the fetus. The still obscure subject of the uterine contractions, their mechanism, normal and pathologic, is thoroughly considered, and one will agree with almost all the opinions expressed. The action of drugs, anesthetics, etc., likewise is fully described. The puerperium is studied with equal care and completeness, and in general one will say that the book will certainly help to raise obstetrics to a higher plane among related sciences.

PRINCIPLES OF BACTERIOLOGY. By Arthur A. Eisenberg, A.B., M.D., Director of Laboratories, St. John's Hospital, Cleveland. Second edition. Cloth. Price, $2.25. Pp. 214, with 40 illustrations. St. Louis: C. V. Mosby Company, 1923.

The second edition of this book, intended primarily for student nurses, has been enlarged by the addition of material concerning the bacteriophage phenomenon, precipitation tests for syphilis, blood grouping and the colorimetric titration of mediums. It is unfortunate that the author did not take the opportunity to correct certain misstatements that appeared in the first edition. A few of the most glaring ones may be noted. 1. Denitrifying bacteria do not "reduce" proteins to nitrates. 2. The Schick test will not detect diphtheria carriers. 3. The p_H value should be defined as the logarithm of the reciprocal of the hydrogen ion concentration. 4. The anaerobic culture methods described are not the ones in most common use. 5. Streptococci give a variety of types of hemolysis on blood agar plates—not always a "wide zone." 6. The inulin fermentation test for differentiation of pneumococci and streptococci is not absolute. 7. *Bacillus botulinus* is distinctly a spore former. 8. The Plotz bacillus is not generally recognized as the cause of typhus fever. 9. Contamination of milk from human sources is of equal, if not of greater, importance in the spread of disease than animal contamination, and yet it is disregarded. The author has attempted the impossible task of presenting the subject of medical bacteriology in 210 rather small pages. It is creditable to him that the book is as good as it is. Would it not be far better, however, arbitrarily to limit the subjects discussed to those which are of fundamental importance to a nurse rather than to attempt to outline the entire field?

THE CHEMICAL BASIS OF GROWTH AND SENESCENCE. By T. Brailsford Robertson, Ph.D., D.Sc., Professor of Physiology and Biochemistry, University of Adelaide, South Australia. Cloth. Price, $3. Pp. 389, with 45 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

In this volume, to which the author has brought a vast amount of data as well as a philosophical observation of life processes, one finds an adequate presentation of the modern point of view as to the influences governing human development. In an opening chapter, all of the data available are given as to the relationship of height and weight to rest, diet and other known factors. The author is able to present curves of the rate of growth of the fetus and the influences governing that rate. This he follows with a comparative study as regards the same factors in their effects on animals, plants and unicellular organisms. Another chapter concerns the accessory food factors, or vitamins. Then the author turns his attention to influences which may retard the growth of

the body, and those which cause its differentiation. These studies permit Dr. Robertson to develop the thesis elaborated in his final chapters; namely, that the evolution of higher forms has been accompanied by an increasing independence of the environment, and the establishment of specific nutrient levels; that cancer is hyperdifferentiation, and that its study involves the problems of cell growth, which are fundamental in the study of life processes. He indicates that there are special agencies which may be used to influence the growth and development. The final chapter is a philosophical consideration of growth and evolution. Everything comes back to the effects of the germ plasm on the cell. The volume is highly technical, and obviously more suited to research students than to the general reader.

LES SÉCRÉTIONS INTERNES. Leur influence sur le sang. Par Dr. Maurice Perrin, Professeur agrégé à la Faculté de médecine de Nancy, et le Dr. Alfred Hanns, Chargé de cours à la Faculté de médecine de Strasbourg. Préface du Professeur A. Gilbert, Professeur de Clinique médicale à la Faculté de médecine de Paris. Second edition. Paper. Price, 12 francs. Pp. 280. Paris: J.-B. Baillière et Fils, 1923.

Special emphasis is placed on the influence of the endocrine glands on the blood. Curiously enough, the authors include with the endocrine glands such organs as the alimentary tract, the mammary glands, the kidneys, the skin, the lungs, the lymph glands, the bone marrow and the muscles. The references to the literature are mainly French. The material presented is interesting, but the monograph leaves the impression of superficiality, the authors apparently not having covered any one field of the subject thoroughly enough to be familiar with the international literature, and therefore in a position to speak with authority.

THE TREATMENT OF DIABETES MELLITUS. With Observations Based upon Three Thousand Cases. By Elliott P. Joslin, M.D., M.A., Clinical Professor of Medicine, Harvard Medical School. Third edition. Cloth. Price, $8. Pp. 784, with 26 illustrations. Philadelphia: Lea & Febiger, 1923.

In his new preface, Dr. Joslin says, "Insulin does not cure diabetes, but it is a priceless gift to the severe diabetic, provided he be intelligent and faithful." Of course, the discussions of the use of insulin form the more important part of this edition, and the fact that Dr. Joslin has been in intimate contact with all of the developments in diabetic therapy during many years makes his text one of the most thorough and reliable that is available. In the present volume, the insulin chapter is entirely new. There are also new sections on pathology, respiratory metabolism, duodenal ulcer, the methods described by Newburgh and Marsh for giving high-fat diets, and the modern conception of acidosis. The section on treatment is exceptionally thorough, considering every phase of the disease, and its complications, and the final section on foods and their composition is a complete collection of important data, which one who treats the patient with diabetes cannot afford to be without. Previous editions of this book have been warmly recommended. The present volume is quite up to date, and maintains the same high standard.

DIE KRANKHEITEN DER ENDOKRINEN DRÜSEN. Ein Lehrbuch für Studierende und Aerzte. Von Dr. Hermann Zondek, a. o. Professor an der Universität Berlin. Paper. Price, $3.85. Pp. 316, with 173 illustrations. Berlin: Julius Springer, 1923.

This is a compilation of the pathologic physiology of the endocrine glands, particularly for physicians and medical students, by a man who has done considerable clinical work in this field. The book is profusely, and, on the whole, judiciously illustrated. The author has left out purposely the subject of the pancreas and diabetes, giving as his reason that this subject is adequately treated in special monographs. He accepts the theory of Falta of mutual stimulation and inhibition of the various endocrine glands, and he furthermore takes the position that practically all disturbances of the endocrines are pluriglandular. He shows very little critical judgment on this subject or on that of the relation of the sympathetic and autonomic nervous system to the endocrine glands, accepting with little question the theories of vagotonia and sympatheticotonia. In general, the author goes through the different endocrine glands under the headings of (1) symptoms, (2) diagnosis and (3) treatment. There is a brief citation of the literature (mostly the German literature) at the end of the volume, and an index. It is a creditable book, not superior to monographs in the English language covering the same field.

Miscellany

SELECTIONS FROM "THE BOOK OF JOSEPH, WHICH IS A COLLECTION OF ALL THERAPEUTICS"

Translated from the Persian

H. A. LICHTWARDT, M.D.
MESHED, PERSIA

"The Book of Joseph, Which is a Collection of All Therapeutics," was written in the year 917 A. H. (1511 A. D.) by Joseph, son of Mohammed, son of Joseph, the doctor, at Herat, Afghanistan, which was then part of Persia.

LETHARGY, which is forgetfulness:

Symptoms, of the type which is from phlegm; heaviness of the head, dampness of the nose, and water going from the mouth, much sleep.

Lethargy, when it comes, is not a delusion,
Your health suffers much, and your mind's in confusion.
Of "essence of life" take one miscal each day,
Then this evil disease will be driven away.

Directions for this "essence of life," which is also called "the medicine of philosophers":

Kernels of pistachio and of Indian walnuts, of each, 10 miscals;[1] black raisins, seeded, 30 miscals. Grind and mix with 300 miscals of melted honey.

Pepper and long pepper and ginger and cinnamon, and skins of myrobalan and citron and fumitory, and round birthwort and root of camomile, of each, 10 miscals. Grind and sift and mix all together and every morning make 1 or 2 miscals into a pill and swallow it. For food, eat brochettes and fried meat.

INSANITY, which is craziness:

He who falls into insanity's pit,
Must drink salts of bile, to get out of it.
And then medicine, to drive out his sorrow,
That nothing but joy will be found on the morrow.

To bring about this adjustment of joy, for a cold-blooded person, give something like aloes wood and ambergris; for a warm-blooded person, something like sandal and camphor.

About the cure of insanity:

If a person is actually crazy-insane,
And all of his senses have gone on the wane,
For his eyes, let women of beauty be found,
For his ears, only harp and cymbal should sound.
If there is an increase of bile that is black,
Then that is the reason, that of sense there's a lack.
He daily must drink of wine, ruby red;
Thus quickly will vanish this taint from his head.

APOPLEXY, which is composed of the destruction of the sense and movement of all the members of the body. If it is from the blood:

Symptoms: fulness of the veins and other symptoms due to an increase of blood.

When apoplexy causes a person to fall,
Consciousness and movement respond not to call.
If you note that the face and the eyes, both are red,
Immediately open a vein of the head.

Signs as to whether the victim of apoplexy is living or dead:

When an apoplectic his breath does not stir,
And that he is dead, you are not quite sure,
Look into his eyes; if your reflection you see,
Then he is alive; to Allah praise be.

1. A miscal is about one-sixth ounce, or 5 gm.

TREMOR, which is a trembling of parts of the body, when it comes from a cold and wet humor:

Symptoms: forgetfulness, heaviness of the limbs, without thirst. If from drinking wine or other dissipation, the reason is evident.

If the tremor occurs from an increase of phlegm,
Salts should be taken, which will lessen them.
Or if 'tis from dissipation, wine or ought else,
This must be stopped, lest he ruin his health.

HORDEOLUM, which is a pimple on the inside of the eyelid, at the place where the eyelashes grow:

Oh, you whose eyes are troubled with styes,
Start treatment at once if you would be wise.
Sagepenon and vinegar and asafetida gum,
Drop these all in your eye and a cure will then come.

OPHTHALMIA, which is a pain in the eye:

If ophthalmia troubles you and makes your eyes wet,
To capture the gazelle of health in your net,
Some Egyptian cassia and swallow-wort pulverize,
And daily apply this to both of your eyes.

Directions for the medicine mentioned:

Egyptian cassia, 2 miscals; Egyptian sugar and Chinese swallow-wort, or sarcolla, which has been placed one day and night in donkey's milk and dried in the shade, of each, 1 miscal. Grind all and sift and pulverize until it becomes a fine powder.

CATARACT, which is the coming of water into the eyes, into the place of vision:

If a cataract in your eye has made a good start,
'Tis an unfortunate burden, upon your worn heart.
But you must not worry, nor quickly grow old,
For it soon can be cured, by fresh "pills of gold."

Directions for "pills of gold":

Aloes of Sentari, 1 miscal; skins of yellow myrobalan, gum mastic, tragacanth, scammony, saffron, of each, ¼ dram. Red roses, ½ dram. All ground and sifted and mixed with water, then pills made and swallowed.

HEALTH OF SCHOOL CHILDREN IN PORTO RICO

The U. S. Children's Bureau made a survey of child welfare in Porto Rico at the request of the department of education. The study took the form of a children's year in which investigation was combined with demonstration. In the report it appears that the basic problems of Porto Rico are illiteracy, poverty and disease. When the United States acquired the island there were no public school buildings at all, and 79.9 per cent. of the children over 10 years of age were illiterate. Now the expenditure for education is larger in proportion to resources than it is in any state. School facilities are still far from adequate, and compulsory education cannot be enforced until more funds are provided. The 1920 census showed that 240,191 children of school age were not in school, and that 55 per cent. of those over 10 years of age were illiterate. This is not high compared with other Latin countries, but it is much higher than in the states, and it is a serious handicap to the government.

The majority of Porto Ricans live in thatched huts which are so cheap that they cannot be mortgaged. Three fourths of the people live in rural districts not even classed as villages. The death rate, which in 1920 was 23.3 per thousand, reflects their physical condition, and fundamental improvement in the mode of living will be necessary before it can be lowered. During the last ten years of Spanish rule in Porto Rico, the death rate averaged 30.2; in the next ten years, 27.3, and the next ten years, 24.1 per thousand. Sanitation has never been understood by the masses. A diet low in vegetables is a handicap. The physicians of the island understand the effect of the diet, but they have not emphasized its importance. The people depend on medicine for ailments for which Northern physicians would prescribe improved diet.

Tuberculosis is first as a cause of death; then malaria, rickets and anemia. The infant mortality rate in 1922 was 162 per thousand, and in the second year is about two fifths as much, while in the states it is about one fifth as much in the second year as it is in the first. The health department of Porto Rico has repeatedly pointed out that there are not enough physicians, that confinement cases are left to midwives who have not been trained, and that expectant mothers are not given care and instruction. More than fifty public hospitals have been established in the last twenty years. Some are mere shacks, but a few are excellent; for example, the Presbyterian at San Juan, St. Luke's at Ponce, and the Congregational at Humacao.

In introducing health teaching in the schools, the Children's Bureau found that a most troublesome problem was procuring tooth brushes. These were sold for 6 or 7 cents to the children on instalments, a penny at a time. Even thus, poverty was so widespread that three fourths of the children could not buy brushes. The two health teachers of the Children's Bureau assisted in conducting baby conferences. Physicians gave one day a week for physical examinations, and these proved important in disclosing that trachoma was prevalent.

In an educational campaign arranged by the Children's Bureau, the National Committee for the Prevention of Blindness found that much blindness in Porto Rico was due to remedial causes. The shortage of ophthalmologists and facilities for refraction must be overcome if blindness is to be prevented. The committee recommended a detailed investigation of the blind and the causes of blindness, and that a traveling eye clinic having one oculist and two nurses which would visit all parts of the island be established.

Medicolegal

No Rights of Action Between Woman and Abortionist

(Hunter v. Wheate (D. C.), 289 Fed. R. 604)

The Court of Appeals of the District of Columbia, in reversing, with costs, a judgment obtained by Mrs. Wheate in this action for malpractice, and in remanding the cause with directions to grant a new trial in accordance with the views expressed in this court's opinion, says that the court below should have directed a verdict for the defendant, a licensed practitioner of medicine and surgery. The declaration was in two counts, the first in substance alleging a contract between the plaintiff and the defendant to produce a miscarriage on the plaintiff and to give her proper treatment and care in connection therewith, and averring negligence on the defendant's part in the performance of the contract. The second counted on the same transaction without alleging a contract, and charged the same negligence. It was quite clear from the testimony given by the plaintiff that she fully understood the purpose of the operation and consented to it. Were it material in this case, this court would incline to the view that she was neither reluctant nor unwilling to have the operation performed. There was no evidence tending to show, nor was it contended, that the miscarriage was produced because it was necessary to preserve her life or health, and the evidence tended to show, as the jury evidently found, that in performing the operation and in his subsequent professional treatment of her the defendant was negligent. The defendant introduced no testimony in his behalf, but at the close of the plaintiff's evidence moved for a directed verdict on the ground that the action was brought for the recovery of damages alleged to have accrued as the result of the carrying into effect of an illegal contract. However, the court below submitted the case to the jury on the theory that the relation of physician and patient subsisted between the defendant and the plaintiff, and that therein it was the duty of the defendant to exercise reasonable care and skill as a physician, for failure to do which he would be liable.

In *Thompson* v. *United States*, 30 App. D. C. 352, this court held, in common with what seems to be the views of most other courts under similar statutes, that the woman on whom

a miscarriage is produced is not criminally liable and is not to be regarded as an accomplice; in other words, that the penal provision of the statute applies only to persons whose act produced the miscarriage on her, and that the woman herself is to be regarded as the victim. It is apparent that the charge of the court below was induced by its understanding that in the Thompson case the court regarded such a woman as guiltless of any immoral or illegal act. But in that case it was not the intention of this court to go further than to pass on the admissibility, credibility and legal effect of the testimony of a woman in a criminal prosecution against the party charged with the commission of an abortion on her, and it was not intended thereby to suggest that she had any immunity in civil actions from the legal consequences of her participation in illegal or immoral acts. It is hardly necessary to say that in voluntarily participating in the miscarriage on herself the plaintiff engaged, not only in an unlawful act, but also in one which was immoral, without regard to the question of whether or not she was quick with child. The rule that no court will lend its aid to one who founds his cause of action on an immoral or an illegal act applies whether the act is performed in the execution of a contract or not.

A test sometimes applied by the courts in determining whether an action of this character will lie is to inquire whether, if the defendant were the plaintiff, a recovery would be allowed. Can it be believed that, if the operation in this case had been performed without negligence on the part of this defendant, and had been successful in every sense, and an action brought by him against this plaintiff to recover for his services in connection therewith, such recovery would be allowed?

Diagnosis, Treatment, Biased Judgment, Damages

(Edwards et al. v. Uland (Ind.), 140 N. E. R. 546)

The Supreme Court of Indiana, in an opinion superseding a former opinion in 131 N. E. R. 240, reverses a judgment for $2,000 damages recovered by plaintiff Uland against two physicians, and directs that the defendants' motion for a new trial be sustained. The court says that the theory of the complaint, on which the case was tried, was that of recovering damages for negligence in making a wrong diagnosis and giving treatment accordingly, treating with vaccine for a supposed disease of the flesh and blood, instead of performing a surgical operation to remove infected bone. But the evidence fell short of making out a cause of action for negligence in making a diagnosis. The evidence proved, without contradiction, that both of the defendants graduated from medical colleges, each taking a four-year course; that each had had hospital training; each had duly obtained a license to practice his profession; and each had practiced for some years; that in making a diagnosis they obtained a history of the plaintiff's case; that they stripped him and observed the scars from the former operations he had undergone; examined his blood for pus germs and by counting the number of white blood cells; examined the urine, testing it for albumin, sugar, gravity, acidity and reaction, and found it normal; examined the lame arm by pressure for any tenderness resulting from a disease of the bone, and found none; procured a roentgenogram of the arm, which showed the bone not involved; examined the pus under a microscope as soon as it came out through the skin, and decided that the infection was streptococcic; that on this examination they decided that only the tissues were infected, until after five months, when they found the bone to be infected and removed parts of it by a surgical operation; and that still more of the bone was infected and had to be removed when another surgeon was called a few weeks thereafter; that at all stages the defendants consulted together.

Assuming that the plaintiff was affected with osteomyelitis from the beginning and that the defendants were mistaken in their diagnosis, such facts alone would not give him a right to recover damages. A physician or surgeon is not an insurer, and does not bind himself to make a correct diagnosis and effect a cure or to respond in damages. He is only bound to possess reasonable skill and to use ordinary care, and if he makes a mistake in his conclusions as to whether a sore place on the skin has its origin in the flesh or in the bone under the flesh, he is excused from liability if, possessing reasonable skill, he has used ordinary care in making an examination, and has honestly reached the mistaken conclusion by the use of such skill and such care. In the absence of evidence of any lack of skill or of any lack of care in making the examination and forming his judgment, mere proof that the diagnosis was wrong will not support a verdict for damages. Not having warranted a cure, if he has reasonable skill and learning and uses ordinary care, he is not liable for the consequences of an honest mistake of judgment. A failure to cure is not enough, in itself, to raise an inference of negligence in the diagnosis and in the treatment adopted.

The jury was instructed that it is the duty of a physician or surgeon to use an unbiased judgment in determining the disease of his patient, and that he would be liable in case ill feeling toward another physician or surgeon should be allowed to bias his judgment or influence his treatment, and such action should result in injury to such patient. But that instruction was outside the issues tendered by the complaint, and it was erroneous in not embracing all the facts on which liability would depend. It omitted the elements (*a*) that the diagnosis was incorrect, (*b*) that it was negligently made, (*c*) that it and the treatment based thereon were the proximate cause of the injuries for which damages were asked by the complaint, and (*d*) that no negligence of the plaintiff contributed to cause such injuries.

All that the defendants did having been lawful except only as it may have been negligently done, the plaintiff was entitled only to compensatory damages. Such an indefinite instruction was erroneous, as it authorized the jury, if it chose, to award damages not limited to compensation for that excess of pain and suffering endured and for the amount in which the plaintiff's capacity to earn money was impaired, by reason of the alleged negligence, over what he would have suffered and his earning capacity would have been impaired because of the disease, if his arm had been treated with proper skill and due care.

"Temporary Disability"—Length Not to Be Forecast

(Inland Rubber Co. v. Industrial Commission et al. (Ill.), 140 N. E. R. 26)

The Supreme Court of Illinois, in affirming a judgment that set aside an award under the workmen's compensation act wherein a physician testified that roentgenograms revealed a synovial effusion in the hip joints, and that the condition indicated a traumatic tuberculous coxitis, says that it ought to be pointed out that the commission had no right to forecast the length of the period of temporary total incapacity. By its award, the commission had determined that the claimant was totally incapacited for work, that his condition was temporary, and that his temporary condition would continue for 288 9/13 weeks and then suddenly cease. Temporary disability is a condition that exists until an injured workman is as far restored as the permanent character of the injuries will permit, and the length of the period of the temporary disability can be determined only when that period ends.

Society Proceedings

COMING MEETINGS

Alabama, Medical Association of the State of, Montgomery, April 15-18 Dr. D. L. Cannon, 519 Dexter Avenue, Montgomery, Secretary.

American Association of Anatomists, Buffalo, N. Y., April 16-19. Dr. Lewis H. Weed, Johns Hopkins Medical School, Baltimore, Secretary.

American Surgical Association, Baltimore, April 17-19. Dr. Robert B. Greenough, 8 Marlborough Street, Boston, Secretary.

North Carolina, Medical Society of the State of, Raleigh, April 15-17. Dr. L. B. McBrayer, Sanatorium, Secretary.

South Carolina Medical Association, Orangeburg, April 15-17. Dr. Edgar A. Hines, Seneca, Secretary.

Tennessee State Medical Association, Knoxville, April 8-10. Dr. J. F. Gallagher, Jackson Bldg., Nashville, Secretary.

Western Electro-Therapeutic Association, Kansas City, April 17-18. Dr. Charles Wood Fassett, 115 E. 31st Street, Kansas City, Mo., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

33: 1-154 (Jan. 15) 1924

*Diagnosis and Pathologic Physiology of Arteriovenous Aneurysm. C. F. Hoover and A. J. Beams, Cleveland.—p. 1.
*Ventricular Ectopic Tachycardia Complicating Digitalis Therapy. W. D. Reid, Boston.—p. 23.
*Comparison of Certain Methods of Treatment and Diagnosis of Hookworm Infection. W. A. Sawyer and W. C. Sweet, Melbourne and Brisbane, Australia.—p. 35.
*Clinical Results Obtained with Bacillus Acidophilus. N. Kopeloff, Ward's Island, N. Y.—p. 47.
*Nature of Bacillus Acidophilus Therapy. N. Kopeloff and P. Beerman, Ward's Island, N. Y.—p. 55.
*Disturbances of Renal Function in Pernicious Anemia. E. J. Stieglitz, Chicago.—p. 58.
*Paralysis of Left Recurrent Laryngeal Nerve in Mitral Stenosis. M. Notkin, Montreal, Canada.—p. 71.
*Creatinin Test for Renal Function. R. H. Major, Kansas City, Kans. —p. 89.
*Excretion of Organic Acids in Urine of Patients with Diabetes Mellitus. P. Star and R. Fitz, Boston.—p. 95.
Specific Gravity of Urine. H. Sharlit and W. G. Lyle, New York.—p. 107.
*Comparison of Constants for Determination of Vital Capacity. W. S. Lemon and H. J. Moersch, Rochester, Minn.—p. 118.
Vital Capacity in Relation to Operative Risk. W. S. Lemon and H. J. Moersch, Rochester, Minn.—p. 128.
Basal Metabolism and Vital Capacity. W. S. Lemon and H. J. Moersch, Rochester, Minn.—p. 130.
Factors Influencing Vital Capacity. W. S. Lemon and H. J. Moersch, Rochester, Minn.—p. 136.
Effect of Dyspnea Variously Produced on Vital Capacity of Lungs. M. Joannides, Minneapolis.—p. 145.

Arteriovenous Aneurysm with Fistula.—Two cases of arteriovenous fistula in the femoral vessels were investigated by Hoover and Beams. In one, the leak could readily be shunted out by compressing the femoral artery at Poupart's ligament; in the other case, the patient had so much edema and pain, he could not tolerate digital pressure on the femoral vessels, nor would he tolerate a ligature about the thigh. In the second patient the arteriovenous leak was not so large as in the first, but the hydraulics of the blood flow were affected exactly the same in both though in different degrees. In these cases, there are two demonstrable effects on the circulation that characterize the lesion and enable the clinician to evaluate the burden added to the heart by the arterial leak. The essential points studied were: the changes in arterial pressure without change of pulse pressure; enlargement of both ventricles without dilatation of the auricles, and hepatic pulsation.

Ventricular Ectopic Tachycardia.—The histories of five cases in which ventricular ectopic tachycardia appeared during the treatment of auricular fibrillation by digitalis are recorded by Reid. In one, the change to ventricular fibrillation was recorded electrocardiographically. This is believed to be the first report in which electrocardiograms show, in man, the sequence ventricular ectopic tachycardia to ventricular fibrillation. The amount of digitalis administered before the onset of this arrhythmia was in excess of that indicated by the Eggleston method of calculation. The condition was confused with auricular flutter and more digitalis given to some patients. Ventricular ectopic tachycardia is relatively rare. It cannot be differentiated from auricular ectopic tachycardia without an electrocardiogram and not always then. Previous reports of it, especially cases which followed the administration of a drug—chloroform, quinidin sulphate, strophanthin and digitalis—are mentioned by Reid. Ventricular ectopic tachycardia as a complication of digitalis therapy in man has been previously reported only twice.

Treatment of Hookworm Infection.—Examination by Sawyer and Sweet of the feces of 447 patients by the Willis salt flotation method showed that 121 were infected with hookworm; seventy-two with whipworms (*Trichuris trichiura*) and twelve with threadworms (*Oxyuris vermicularis*). No evidence of other intestinal worms was found. The vermicides used were carbon tetrachlorid, oil of chenopodium and the two drugs combined, and they were given on an empty stomach. There was no purging or starvation in preparation for treatment. The purge given after treatment was 45 gm. of magnesium sulphate in water. In doses regarded as safe to use on a large scale in the field, carbon tetrachlorid was not as efficient as oil of chenopodium in the treatment of infections with *Ancylostoma duodenale*. Oil of chenopodium, in a dose of 1.5 c.c., given in two equal parts, at an interval of two hours, and followed by a purge, proved highly efficient and was superior to the undivided dose. Carbon tetrachlorid is a mild laxative, but cannot be depended on to move the bowels in moderate doses or mixed with oil of chenopodium. Sawyer and Sweet suggest it would be good practice to give a purge three or four hours after the administration of this drug.

Bacillus Acidophilus Therapy.—Kopeloff observed thirty constipated subjects before, during and after treatment with *Bacillus acidophilus*. During treatment the number of normal defecations was significantly increased. Patients were observed from a week to about a year after treatment, and almost without exception all had more normal defecations than before treatment. The use of lactose during and after ingestion of *B. acidophilus* enhances the beneficial effects. A transformation of the intestinal flora from a proteolytic to an aciduric type may generally be induced. Such transformation is usually accompanied by almost daily defecations regardless of the severity of the constipation. Two cases of diarrhea were treated successfully by the administration of *B. acidophilus*.

Id.—The data obtained by Kopeloff and Beerman indicate that *B. acidophilus* therapy is essentially bacteriologic rather than physical or chemical in nature.

Disturbed Renal Function in Pernicious Anemia.—Correlation of his findings and those of others leads Stieglitz to conclude that the renal functional changes in pernicious anemia may be attributed, at least in part, to the accumulation of iron in the convoluted tubules, rather than to the anemia alone. The hemosiderosis and the resulting changes in function are so specific that the condition may be termed the nephritis of pernicious anemia. The changes are apparently purely tubular and result from a perverted metabolism.

Paralysis of Recurrent Laryngeal Nerve in Mitral Stenosis.—Analysis of the literature and a study of a case convinced Notkin that paralysis of the recurrent laryngeal nerve in mitral stenosis may be produced in various ways, and that in a single case there may be more than one etiologic factor. It seems probable that the most important and most frequent mechanism is an enlarged pulmonary artery, through its own dilatation, or through pressure transmitted to it by the left auricle and pulmonary vein, compressing the nerve against the aorta or ductus arteriosus. Secondary factors may aid in the compression by increasing the rigidity of the opposing parts, namely, thrombi in the auricle, thrombosis of the pulmonary artery, atheroma and sclerosis of the pulmonary artery and aorta, and cicatrization. In some cases there is probably an initial neuritis, and if the cardiac condition is not improved, the irritability and increased pressure would more readily lead to degeneration of the nerve. Cases occur in which the etiologic factor is enlarged mediastinal glands, coincident with mitral stenosis, but even in these the heart may play a secondary part. The early use of digitalis for both diagnosis and treatment is important.

Creatinin Test for Renal Functio·.—Major performed the creatinin test on 113 persons, thirty-three of whom had chronic nephritis, thirty arterial hypertension, seven marked cardiac decompensation, and twenty-five diabetes mellitus. The test proved to be a good index of kidney function in disease. Normal kidneys respond to the intravenous injection of creatinin by an increased output of creatinin which averages three times that normally excreted in the same period of time. The kidneys in chronic nephritis showed on the average a slight increase only, and in many instances a decrease.

Organic Acids in Urine in Diabetes Mellitus.—The data presented by Starr and Fitz suggest that in certain cases of diabetic acidosis, organic acids other than the acetone bodies are encountered, and play a part in the production of symptoms. These acids may be excreted in the urine in larger

concentration than is found in normal urines. Under these conditions the fall of the plasma bicarbonate below 80 volume per cent. is usually in excess of that accountable for by the concentration of acetone bodies in the blood.

Constants for Determination of Vital Capacity.—Lemon and Moersch state that for routine purposes, the determination of the operative risk from the surgeon's opinion is probably a more satisfactory estimate than that obtained by means of vital capacity readings. However, if the surgeon is not experienced or is not assisted by an experienced internist in making such estimate, especially in questionable cardiac and pulmonary conditions, vital capacity determinations may be of the greatest aid.

Boston Medical and Surgical Journal

190: 89-120 (Jan. 17) 1924

Rheumatic Fever. W. H. Robey, Boston.—p. 89.
Pulmonary Syphilis. J. B. Hawes, Boston.—p. 92.
Value of Cecostomy in Advanced Cancer Cases Associated with Obstruction. W. E. Hartshorn, New Haven, Conn.—p. 95.

Illinois Medical Journal, Oak Park

45: 1-76 (Jan.) 1924

Certain Medical and Surgical Aspects of Disease of Biliary Apparatus. W. J. Mayo, Rochester, Minn.—p. 33.
Ovarian Insufficiency. J. H. Hutton, Chicago.—p. 37.
Personal Experiences in Bronchoscopy and Esophagoscopy During Past Year. E. McGinnis, Chicago.—p. 42.
Negative Pressure in Treatment of Diseases of Nose and Accessory Sinuses. G. C. Ortrich, Belleville, Ill.—p. 47.
*Case of Severe Chlorosis. H. J. Isaacs, Chicago.—p. 49.
Treatment of Fibroids of Uterus. E. C. Roos, Decatur, Ill.—p. 50.
Influence of Technic on Specificity of Luetin Reaction. F. Herb, Chicago.—p. 53.
Psychology of Tuberculous Patient. G. T. Palmer, Springfield.—p. 56.
Pain As Evidence of Anorectal Disease. C. J. Drueck, Chicago.—p. 58.
Case of Spontaneous or Idiopathic Pneumothorax. C. G. Appelle, Champaign, Ill.—p. 60.
Medical Editor's Attitude Toward Present Trend of Events. H. J. Achard, Chicago.—p. 64.
Ductless Glands in Mental Deficiency of Children. W. L. Shank, Shabbona, Ill.—p. 69.

Severe Chlorosis.—In Isaacs' case the blood findings were: red cells, 1,976,000; hemoglobin, 15 per cent.; color index, 0.375; white cells, 3,500. The patient was given Bland's pills with hypodermic injections of from ½ to 1 grain of sodium cacodylate, and liberal diet. The maximum dose of Blaud's pills was 90 grains daily, given in three doses. A rapid regeneration of the blood was obtained in seven weeks; red cells, 5,260,000; hemoglobin, 88 per cent.; color index, 0.88.

Journal of General Physiology, Baltimore

6: 239-347 (Jan. 20) 1924

Kinetics of Trypsin Digestion. I. Experimental Evidence Concerning Existence of an Intermediate Compound. J. H. Northrop, New York.—p. 239.
Kinetics of Senescence. S. Brody, Columbia, Mo.—p. 245.
Iso-Electric Points for Mycelium of Fungi. W. J. Robbins, Columbia, Mo.—p. 259.
Luminescence in Pelagia Noctiluca. C. Heymans and A. R. Moore, Naples, Italy.—p. 273.
Nervous Mechanism of Coordination in Crinoid, Antedon Rosaceus. A. R. Moore, Naples, Italy.—p. 281.
Hydrogen Ion Concentrations Within Alimentary Tract of Insects. W. J. Crozier, New Brunswick, N. J.—p. 289.
Effect of Laboratory Age on Phototropic Reactions of Limulus. W. H. Cole, Lake Forest, Ill.—p. 295.
Effect of Phosphates on Respiration. C. J. Lyon, Hanover, N. H.—p. 299.
Hydrophilic and Hydrophobic Colloids and Influence of Electrolytes on Membrane Potentials and Cataphoretic Potentials. J. Loeb, New York.—p. 307.
Rate of Growth of Dairy Cow. V. Extra-uterine Growth in Linear Dimensions. S. Brody and A. C. Ragsdale, Columbia, Mo.—p. 329.
Test for Diffusible Ions. I. Ionic Nature of Trypsin. J. H. Northrop, New York.—p. 337.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

22: 329-411 (Dec.) 1923

*Physiology and Pharmacology of Trigonum Vesicae. H. H. Young and D. I. Macht, Baltimore.—p. 329.
*Blood Sugar Concentration in Liver Vein, Leg Artery and Leg Vein During Insulin Action. C. F. Cori, G. T. Cori and H. L. Goltz, Buffalo.—p. 355.
*Comparative Toxicity of Novocain, Neocain, Procain and Apothesin. Effect of Intravascular Injections. W. R. Meeker and E. B. Frazer, Rochester, Minn.—p. 375.
*Effect of Iodids on Nitrogen Metabolism. G. P. Grabfield, B. J. Alpers and A. M. Prentiss, Boston.—p. 393.
*Hematopoietic Effects of Desiccated Red Bone Marrow and Spleen in Normal Humans. C. D. Leake, Madison, Wis.—p. 401.

Physiology and Pharmacology of Trigonum Vesicae.—Evidence is adduced by Young and Macht showing that the trigonal muscle is a definite entity continuous with the longitudinal muscle fibers of the ureters and is superimposed on the muscles of the bladder wall. The opening of the vesical orifice during urination is not an inhibitory action, but is primarily the result of the contraction of the powerful trigonal muscle which passes in the form of an arc through the weaker arcuate muscles at the vesical orifice ("the vesical sphincter") and pulls them open mechanically on contraction. In addition to the rôle played by the trigonal in initiating micturition by tugging at the urethal orifices and thus promoting rhythmic discharge of urine from the ureters into the bladder. Pharmacologic experiments reveal a striking difference between the trigonal muscle and muscles of the rest of the bladder in respect to their response to drugs. It was found that while epinephrin causes a contraction of the trigonal muscle it produces a relaxation of the muscles of the bladder. While the fondus muscle was found to respond with contraction or relaxation to various drugs belonging to the so-called parasympathetic group, the trigonal muscle was not affected in any way by any of these drugs.

Blood Sugar During Insulin Action.—Simultaneous analysis made by Cori and Goltz of blood of the liver vein, the femoral artery and the femoral vein showed that factors causing the fall of blood sugar during insulin action are a diminished output of sugar by the liver into the blood stream; and a larger intake of sugar than normal by the muscles from the blood stream. Insulin causes a fall of blood sugar by acting on the liver (diminished output of sugar); and by its combined action on the liver and muscle.

Toxicity of Novocain, Procain, Neocain and Apothesin.—Meeker and Frazer found apothesin more toxic than procain, novocain or neocain. Procain is identical in toxicity with novocain (German) and neocain (French) as determined by animal experimentation and clinical use, and is equal to novocain and neocain in local ad regional anesthesia. Intra-arterial injections are less toxic than intravenous injections with the exception of those distributing to the vital nerve centers. Experience in nearly 4,000 surgical cases indicates there is sufficient margin of safety when from 1.5 to 2 gm. of procain in a 0.5 per cent. solution is injected in terminal infiltration or field block, and when not more than 1 gm. in a 1 per cent. solution is injected in nerve block, 10 minims of 1:100 epinephrin being added to 100 c.c. of solution in all cases.

Effect of Iodids on Nitrogen Metabolism.—Grabfield and his associates do not draw conclusions but believe it justifiable to say that potassium and sodium iodids may cause an increased output of nitrogen in the urine, and that potassium iodid may cause an increase in nonprotein nitrogen of the blood amounting in the latter case on the average to 30 per cent. and occasionally reaching pathologic figures.

Hematopoietic Effect of Spleen and Red Bone Marrow.—Experiments made by Leake on normal persons confirm reports that desiccated spleen and red bone marrow are more efficient erythropoietic agents in combination than singly. While the hemoglobin content is considerably increased under the influence of the combined extracts its rise is not as great, nor as rapid, as the increase in the number of circulating red blood cells, but is better maintained. The increase in erythrocytes seems to be due to increased bone marrow activity. The combined spleen and marrow cause also a slight increase in the number of polymorphonuclear neutrophils. No side actions were noted. It is suggested that the hematopoietic response of normal persons to combined red bone marrow and spleen extracts may be used as a prophylactic against mountain sickness, and in affording rapid acclimatization to high altitudes.

Medical Journal and Record, New York

119: 69-128 (Jan. 16) 1924

Synergistic Anesthesia and Analgesia in Surgery. J. T. Gwathmey and G. Schwartz, New York.—p. 69.

*Etiology of Asthma. M. A. Ramirez and A. V. St. George, New York.—p. 71.
The 1923 Epidemic of Grippe. B. M. Randolph, Washington, D. C.—p. 73.
Glandular Fever and Influenza. S. Stalberg, Cleveland.—p. 76.
Laboratory Findings in Lethargic Encephalitis and Their Relation to Diagnosis. R. A. Kilduffe, Los Angeles.—p. 82.
Public Health Education. A. B. Jackson, Washington, D. C.—p. 84.
*Burns. J. F. X. Jones and A. P. Keegan, Philadelphia.—p. 86.
Anemia Subsequent to Antisyphilitic Treatment. L. Stern, New York.—p. 87.
Functional Manifestations Associated with Organic Neurologic Diseases in Exservice Men. J. H. Baird, New York.—p. 89.
Eczema of Breast. D. W. Montgomery and G. D. Culver, San Francisco.—p. 93.
Rhinophyma and Its Cure. J. E. Sheehan, New York.—p. 94.
Tuberculosis Papulonecrotica with Serpiginous Lesions Resembling Tertiary Serpiginous Syphiloderm. M. Scheer, New York.—p. 95.
Choice of Operation in Gastric and Duodenal Ulcer. R. P. Sullivan, New York.—p. 98.
Hydrophobia: Four Hundred Years Ago. W. R. Riddell, Toronto.—p. 101.

Histamin in Causation of Asthma.—Ramirez and St. George's observations showed that all persons react to histamin in some degree when it is introduced into the skin. The reaction is two or three times more intense—speed; extent; wheals (from 15 to 30 mm. in diameter), intensity of the reaction—in persons who manifest symptoms of endogenous asthma, than in those who apparently do not suffer from histamin sensitivity. The treatment of cases of asthma with histamin is said to have yielded good results.

Sodium Bicarbonate Locally for Burns.—Jones and Keegan do not favor sealing burns with wax, but advocate the local use of sodium bicarbonate in a 10 per cent. solution.

Missouri State Medical Association Journal, St. Louis

20: 367-404 (Nov.) 1923

Theory and Practice of Antiseptics and Germicides. M. Pitzman, St. Louis.—p. 367.
Wassermann Reaction and Diagnosis of Syphilis. C. C. Dennie, Kansas City.—p. 372.
Enucleation of Eyeball. J. E. Jennings, St. Louis.—p. 375.
Lymphosarcoma and Other Glandular Enlargements on Neck; Radiation Treatment. E. H. Skinner, Kansas City.—p. 377.
Country School Teacher vs. Country Nurse. J. F. Chandler, Oregon.—p. 379.
Therapeutic Use of Duodenal Tube. H. W. Carle, St. Joseph.—p. 381.
Epilepsy in Exservice Men. F. M. Barner, Jr., St. Louis.—p. 384.
Scarlatina-Like Rash Following Tonsillitis. E. Moody, Joplin.—p. 386.

21: 1-30 (Jan.) 1924

*Dementia Praecox, Type of Hereditary Degeneration. L. B. Alford, St. Louis.—p. 1.
Conservative Gynecology. Q. U. Newell, St. Louis.—p. 3.
Scope of Department of Gynecology in Missouri Pacific Hospital. G. Gellhorn, St. Louis.—p. 6.
Cancer Surgery. E. D. Twyman, Kansas City.—p. 9.
Diagnosis and Treatment of Chronic Diseases of Nasal Sinuses. S. Roberts, Kansas City.—p. 12.
Anesthesia in Minor Surgery. R. E. Webus, St. Louis.—p. 16.
*Traumatic Rupture of Normal Spleen. H. K. Wallace, St. Joseph.—p. 18.

Dementia Praecox a Hereditary Degeneration.—Alford states that on the evidence of analogy dementia praecox appears to belong to the group of heredofamiliai degenerations and is, therefore, to be assumed to depend on the degeneration of a certain set of nervous structures. The important etiologic factor is assumed to be heredity, and in order to confirm or disprove this assumption, there should be further investigation of the way in which transmission in hereditary degenerations acts. If this conception is correct, treatment can serve only to alleviate symptoms, and prophylaxis must consist in limitating reproduction in defective stock. Until a definite etiology is established, attempts at treatment and prevention can only be guess work.

Traumatic Rupture of Spleen; Operation Two Years Later.—Wallace reports the case of a girl, aged 13, who fell from a tree, about 6 feet, striking on her left side. Her spleen was ruptured in two almost equally sized pieces, and the upper pole of the left kidney was completely torn off. Both viscera were removed. Six months later she was in perfect health. A woman, aged 40, was struck on the right side of her chest and abdomen by a truck. She had very severe pain in the right side and abdomen and under the right shoulder. Pain was the only symptom for two years. She became so insistant for an operation that Wallace did an exploratory with a provisional diagnosis of gallbladder disease. Many adhesions were encountered between the stomach and large bowel and the under surface of the liver, which lay very high. The gallbladder could not be located. In separating the adhesions, a hard mass was felt deep down under the liver, buried in adhesions and stuck to the posterior wall; this was removed. On section it looked like splenic tissue. Three other similar pieces were removed. None had any definite blood supply other than small vessels running through surrounding adhesions. The left upper abdomen was examined for the spleen which was not found. Two months after the operation, the patient was at work feeling much better.

Surgery, Gynecology and Obstetrics, Chicago

38: 1-142 (Jan.) 1924

*Brain Abscess. C. Bagley, Jr., Baltimore.—p. 1.
*Diverticulum of Urinary Bladder. E. S. Judd and A. J. Scholl, Rochester.—p. 14.
Influence of Travel, Reading, Writing and Speech-Making on Progress of Surgery. W. I. DeCourcey Wheeler, Dublin, Ireland.—p. 27.
*Relation of the Endometrium to Ovarian Function. C. C. Norris and M. Vogt, Philadelphia.—p. 33.
*Late Ulnar Nerve Palsy. E. M. Miller, Chicago.—p. 37.
Primary Carcinoma of Ureter. H. L. Kretschmer, Chicago.—p. 47.
Rare Anomalies of Kidney and Ureter. R. V. Day, Los Angeles.—p. 51.
Osteochondritis Deformans Juvenilis. A. H. Galvin, Anaheim, Calif.—p. 58.
Diverticula of Jejunum: Case with Enterolith Causing Intestinal Obstruction. C. M. Watson, Pittsburgh.—p. 67.
*Gangrene of Extremities Complicating Puerperal Sepsis. V. E. Chesky, Halstead, Kan.—p. 72.
Chronic Appendicitis. Is It Myth? J. R. Eastman, Indianapolis.—p. 75.
*Arterial Sympathectomy. Two Cases. E. A. Campbell, New York.—p. 81.
*One Thousand Cases of Abortion. D. S. Hillis, Chicago.—p. 83.
Cystin Nephrolithiasis. Disintegration of Stone by Alkalinization. A. J. Crowell, Charlotte, N. C.—p. 87.
Coexistence of Cholecystitis and Duodenal Ulcer in Same Case. A. MacLaren and H. Oerting, St. Paul, Minn.—p. 92.
*Hemolytic Streptococci and Their Relation to Pregnancy and Puerperium. A. E. Kanter and I. Pilot, Chicago.—p. 96.
*Protein Sensitization in Isoskingrafting. E. Holman, Boston.—p. 100.
*Resection of Kidney in Nephrolithiasis. H. H. Young, Baltimore.—p. 107.
*Indications for Internal splinting of Spine. P. B. Magnuson, Chicago.—p. 112.
New Type of Mattress Particularly Adapted for Use in Cases of Fecal Incontinence. J. F. Montague, New York.—p. 117.
Treatment of Gonorrheal Endocervicitis, by Heat. B. C. Corbus and V. J. O'Connor, Chicago.—p. 119.

Brain Abscess.—Of twenty cases of brain abscess, seventeen were operated on by Bagley, with a mortality of 47 per cent. Eight of the patients operated on and three not operated on died. Necropsy was performed in eight of the eleven fatal cases. The data are given. The clinical course of a brain abscess varies with the infecting organism, the channel through which this organism reaches the brain, and the location of the infection in the brain substance as regards mesoblastic and epiblastic tissue.

Diverticulum of Urinary Bladder.—One hundred and thirty-three cases of diverticulum of the bladder were studied by Judd and Scholl with regard to the type of operation performed and the postoperative results. Complete postoperative data were obtainable in 110 cases. In 32 per cent. the bladder contained multiple diverticula; 69.2 per cent. of the patients were between 50 and 70 years of age. The most common location of the orifice was in the region of the ureteral outlet. In twenty cases the diverticula were associated with stones. Carcinoma occurred in the diverticulum in four cases. In six cases carcinoma of the bladder and diverticula were found. Of the six patients who died following excision of the diverticula, five died as a result of renal infection and obstruction; in most instances they had both acute and chronic nephritis. The sixth patient died of pulmonary embolism; this patient also had chronic nephritis.

Relation of Endometrium to Ovarian Function.—Norris and Vogt believe that the endometrium possesses a definite endocrinal function, and that this function operates in conjunction with the secretory function of the ovary, and is probably subservient to the latter. The endocrinal function of the endometrium probably fluctuates with the menstrual cycle, being most active during the premenstrual period. The chief clinical evidence on which this theory lies is the fact that the

proportion of women who suffer from nervous phenomena after hysterectomy with conservation of one or both ovaries is much greater than the proportion of those who exhibit painful or palpable changes in the conserved ovary. The most conclusive evidence is found in patients who have been treated with radium for the arrest of benign hemorrhages. There is much experimental evidence that tends to show that in these cases the action of radium is limited to the uterus. In operations on the uterus, ovarian conservation is of distinct value, even in panhysterectomies; the ovaries function better, however, and have longer functional life, if a portion of the endometrium is preserved.

Late Ulnar Nerve Palsy.—The primary cause in practically all cases of late ulnar nerve palsy, Miller says, is a fracture at the elbow in childhood. The paralysis may begin as early as three years or as late as forty years after the injury; in 40 per cent. of cases it is first noticed between the twentieth and thirtieth year after the fracture occurs.

Gangrene of Extremities Complicating Puerperal Sepsis.—One case is cited by Chesky. The patient lost the distal end of each toe. Puerperal peripheral gangrene, while not common, may occur in any case of puerperal sepsis or septic abortion. It is always preceded by infection. It is most frequently of arterial origin. The mortality is 50 per cent. or more. The most important step in the treatment is early amputation of the gangrenous part.

Bilateral Femoral Sympathectomy.—In two cases, Campbell did a bilateral femoral sympathectomy; in one, sixteen days after operation, both feet were amputated; in the second, recovery was uneventful.

Conservative Treatment of Abortion.—Hillis' study of 1,000 cases seems to indicate that conservative treatment of abortion in febrile cases gives better results than active therapy. Febrile patients who have a five-day afebrile period have a greater tendency to continue a normal temperature after curettage than those who are operated on before the end of this period. Afebrile patients with a five-day observation period have a greater tendency to remain with a normal temperature than do those who are curetted before the end of this period. Approximately 6.2 per cent. of patients must be treated surgically because of alarming hemorrhage. The gross mortality of the series was 2 per cent. There were 297 cases admitted with a temperature of 100 F. or above; twenty of these died. No patient died among those admitted with a temperature below 100 F. There were twelve febrile patients curetted with three deaths and 229 febrile patients curetted with no mortality. Of the twenty fatal cases, fourteen showed unmistakable signs of extension of the infection beyond the uterus at the time of entrance. In these cases, the abortion had become of secondary importance and the treatment concerned principally well defined complications resulting from the abortion. Of the remaining six cases, the uterus was emptied in the hospital in three on account of hemorrhage (two of these were criminal abortions); one patient was curetted before entrance; two patients were not curetted in the hospital and denied interference before admission. In only one case among those who died, the patient was not subjected to intra-uterine manipulation either outside or in the hospital. Sixteen of the twenty fatal cases were known to have been criminal abortions. Only three deaths occurred, among patients in which the abortion may have been of spontaneous origin. In only one fatal case was the abortion known not to have been criminally induced.

Hemolytic Streptococci in Pregnancy.—The beta type of *Streptococcus hemolyticus* was found by Kanter and Pilot three times in ninety-six cultures. Other types of streptococcus were found in fifty-four instances. The further into the genital tract the culture was obtained the fewer were the positive cultures. The normal vagina rarely contains virulent hemolytic streptococci and there is no evidence that the presence of such streptococci plays any part in the production of puerperal sepsis. Any manipulation of the vagina, either for examination or operative procedure, increases the possibility of puerperal sepsis. Puerperal hemolytic streptococcic infection is regarded in most instances as evidence of exogenous infection. Droplet infection from attendants is possible. The use of gauze masks during delivery and the exclusion from the delivery room and from attendance of puerperal women of those having sore throat is clearly indicated.

Protein Sensitization in Isoskingrafting.—Holman's experience with isografting prompts him to stress the possibility of sensitizing the patient to the foreign protein of the graft. If a similar protein is again introduced, or if the original graft spreads, one is likely to encounter protein poisoning, a reaction comparable but probably not identical with that of anaphylaxis. The protein sensitization or poisoning may manifest itself by a general reaction, or by a gradual disintegration of the foreign transplant as in our second case. Holman questions the value and wisdom of ever attempting isograft when there is any skin available for autografts. Successful isografts exist only in fable, he asserts.

Resection of Kidney in Nephrolithiasis.—Young cites a case of renal calculus, in which the upper pole of the kidney was completely destroyed, and the lower two thirds of the kidney were healthy. Good results followed the resection of the diseased portion surrounding the stone.

Internal Splinting of Spine.—Magnuson fastens a piece of bone removed from the tibia to the raw or freshened lateral bony surface of the spinous processes by means of ivory screws. This type of fixation of the spine is advocated wherever chronic disabling pain and increasing deformity exist.

Virginia Medical Monthly, Richmond

50: 655-730 (Jan.) 1924

Physiology of Pancreas. Pancreatic Function in General Metabolism. T. Hough, University.—p. 655.
Pathology of Pancreas. K. D. Graves, Roanoke.—p. 661.
Diagnosis and Medical Aspects of Diseases of Pancreas. J. H. Smith, Richmond.—p. 662.
Surgery of Pancreas. A. D. Ownbey, Newport News.—p. 665.
Etiology and Prevention of Diabetes. S. Harris, Birmingham, Ala.—p. 672.
Treatment of Diabetes with Diet and Insulin. E. P. Joslin, Boston.—p. 678.
System for Use of Insulin with Diabetic Diet in General Practice. W. T. Vaughan, Richmond.—p. 683.
Gallbladder Surgery. S. McGuire, Richmond.—p. 688.
Diagnosis and Treatment of Gallbladder Disease. W. L. Peple, Richmond.—p. 692.
Gonorrheal Arthritis. W. A. Shepherd and B. Steinberg, Richmond.—p. 695.
*Concurrent Occurrence of Tuberculosis and Asthma. G. A. Ezekiel, Richmond.—p. 699.
Blood Culture as Diagnostic Aid. A. H. Straus, Richmond.—p. 701.
Symptomatology and Diagnosis of Exophthalmic Goiter. W. B. Porter, Roanoke.—p. 703.
*Medical Treatment of Goiter. W. W. Chaffin, Pulaski.—p. 705.
Surgical Treatment of Diseases of Thyroid. T. J. Hughes, Roanoke.—p. 705.
Thyroid Pediatrics. R. H. Dubose, Roanoke.—p. 708.
*Roentgen-Ray Treatment of Hyperthyroidism. J. T. McKinney, Roanoke.—p. 709.
Should Virginia Have Department of Psychiatry? L. S. Foster, Williamsburg.—p. 711.
*Present Day Attitude to Appendicitis. Charles R. Robins, Richmond.—p. 714.

Concurrent Occurrence of Tuberculosis and Asthma.—Ezekiel combats the teaching that a patient with asthma never has tuberculosis. The two diseases may coexist although the diagnosis of tuberculosis in conjunction with asthma is at times difficult. The sibilant and sonorous râles of asthma render obscure and almost, if not entirely, inaudible the fine crepitant râles of an early or slight tuberculous infection of the lungs.

Rest in Treatment of Goiter.—Chaffin says he has tried all drugs that have been advocated for the treatment of goiter, and that he has come to believe that the results from the treatments were nil. The only good the treatment did was to rest the patient and get her in better condition for a surgical operation.

When Roentgenotherapy Is Not Indicated in Treatment of Hyperthyroidism.—All cases of colloidal cystic, simple goiters, nontoxic adenoma and those causing deformity and pressure symptoms, in McKinney's opinion, should never be treated with the roentgen ray but with surgery when intervention is demanded.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

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Archives of Radiology and Electrotherapy, London

193-224 (Dec.) 1923

Electrical Energy as Curative Agent. W. J. Turrell.—p. 193.
I. Radiography of Sella Turcica. R. Knox.—p. 205.
*Extensive Edema Following Intensive Roentgen-Ray Treatment. C. C. Anderson.—p. 217.

Extensive Edema Following Intensive Roentgen-Ray Therapy.—Deep roentgen-ray therapy was given in Anderson's case for a small recurrence in the left supraclavicular region of the breast cancer. Within three weeks the patient had a marked skin reaction, accompanied by slight peeling. She complained of a very dry throat, and a distinct membrane covered the fauces and soft palate, but was negative for diphtheria. Some hoarseness developed and deglutition was difficult for a week or ten days owing to the dry throat, which persisted in a minor degree for weeks. Twelve months later she still had the hoarseness and the glands were still palpable, so it was thought advisable to administer further treatment. A month later the patient exhibited a remarkable edema of the cervical region. It extended vertically from the episternal notch to the submental region, and was not of the brawny type. She still complained of hoarseness and also of a lump in the right armpit. It was found then that the right breast had become affected and that there were metastases in the axilla. Roentgen-ray examination of the chest showed no metastases, but there was a curious even opacity of both apices, which was diagnosed edema extending down into this region. There was a bilateral abductor paresis due to recurrent laryngeal pressure. There was no local disease in the larynx or hypopharynx. No glands were palpable, so the pressure can have been due only to the edema.

British Journal of Dermatology and Syphilis, London

36: 1-46 (Jan.) 1924

*Physical and Pathologic Conditions Governing Pattern and Distribution of Cutaneous Reactions. H. G. Adamson.—p. 1.
History of Discovery of Acarus Scabiei. C. G. Cumston.—p. 13.

Nature of Skin Eruptions.—In Adamson's opinion, eruptions of the skin represent reactions to various hurtful agents which give rise to abnormal stimulus of normal physiologic processes. It is not difficult to explain broadly the different types of cutaneous reaction, but it is remarkable that there should be so many varieties of types, each with constant and characteristic features. Experience with eruptions of which the cause is known, leads one to suppose that eruptions of unknown origin having constant and characteristic features are due to a specific causative agent. The distribution of these eruptions is determined by normal physiologic factors, such as modification of soil by secretions, influence of nerve supply, of blood supply, of lymphatic distribution, of vasomotor function, and of embryonic development. Study of the character and distribution of an eruption may give some clue to the agent which produces it.

British Journal of Ophthalmology, London

8: 1-48 (Jan.) 1924

Holes in Retina. W. Lister.—p. 1.
Relation of Exophoria in Early Presbyopia to Refractive Errors. L. C. Peter.—p. 20.
Differential Diagnosis Between Parinaud's Conjunctivitis and Conjunctivitis Necroticans Infectiosa. C. Pascheff.—p. 25.

British Medical Journal, London

1: 1-44 (Jan. 5) 1924

New Outlook in Cardiology. J. Mackenzie.—p. 1.
*Parathyroid Glands in Relation to Surgery. T. P. Dunhill.—p. 5.
Modern Optical Methods in Examination of Eye. T. H. Butler.—p. 8.
*Action of Physostigmin and Pituitary Extract, Alone and Combined, on Isolated Human Vermiform Appendix; Combined Use in Postoperative Ileus. D. G. T. K. Cross.—p. 9.
*Roentgen-Ray Treatment of Interstitial Keratitis. T. L. DeCurcy and J. H. Mather.—p. 12.
*Treatment of Asthma with Combined Peptone and Vaccine. J. Veitch.—p. 13.
Outward Dislocation at Tarsometatarsal Joint. J. B. Barnett.—p. 14.
*Carbon Monoxid Poisoning During Pregnancy. P. Phillips.—p. 14.

Conserving the Parathyroids in Surgical Operations.—Dunhill presents evidence to show that the parathyroids are glands of which account should be taken at operations mainly because of the danger of tetany. He feels that the parathyroids are best protected by clean dissection of the posterior borders of the thyroid, ligating the branches of the inferior thyroid artery as they enter the gland.

Physostigmin and Pituitary Extract for Postoperative Intestinal Atony.—Experiments on the isolated human appendix have shown that physostigmin and pituitary extract in combination have a more powerful effect in stimulating movements of the intestine than either of these agents singly. A number of cases of severe postoperative atony are described by Cross in which this combination relieved the condition when physostigmin or pituitary extract alone failed to do so. So far no case thus treated has failed unless where there was unsuspected mechanical obstruction.

Roentgenotherapy of Interstitial Keratitis.—DeCourcy and Mather assert that in syphilitic interstitial keratitis roentgen rays in weak doses have an undoubted effect in cutting short the early stages of infiltration into the deeper corneal layers. Roentgen rays should be used as an aid to, but should not take the place of, local, antisyphilitic and general treatment.

Peptone and Vaccine Therapy of Asthma.—The solution used by Veitch was in three strengths: A.—5 c.c. of 6 per cent. solution = 0.25 gm. peptone + 235 million organisms mixed catarrhal vaccine. B.—5 c.c. of 10 per cent. solution = 0.5 gm. peptone + 940 million organisms mixed catarrhal vaccine. C.—10 c.c. of 10 per cent. solution = 1 gm. peptone + 1,880 million organisms mixed catarrhal vaccine. The injections were given every seven days: for the first four weeks half a tube of A solution per week, for the second four weeks half a tube of B. solution per week, and so on, increasing in strength of dosage. The injections were given intramuscularly in the so-called painless area just below the anterior superior spine of the ilium. Generally the results were good.

Carbon Monoxid Causes Death of Fetus.—In Phillips' case a dose of carbon monoxid which was insufficient to kill the mother caused the death of a 6 months old fetus. The normal contractile power of the uterus seems to have been diminished also.

Indian Journal of Medical Research, Calcutta

10: 861-1185 (April) 1923

*Pathogenesis of Deficiency Disease. XII. Function of Suprarenals. Its Relation to Concentration of Hydrogen-Ions. R. McCarrison.—p. 861.
Id.—XIII. Effects of Heat, Cold, Serum and Sunlight on Action of Epinephrin and Adrenalin Hydrochlorid. R. McCarrison.—p. 900.
Pathogenicity of Insect Flagellates to Vertebrates; Herpetomonas Ctenocephali, Fantham. H. E. Shortt.—p. 908.
Revision of Culicine Mosquitoes of India. II. Larvae of Some Indian Species of Culex. P. J. Barraud.—p. 934.
Schistosomiasis (Bilharziasis) in Arabia. S. D. S. Greval.—p. 943.
*Chemotherapy of Antimonial Compounds in Kala-Azar Infection. II. Dermal Leishmanoid. U. N. Brahmachari.—p. 948.
*Distribution of Indian Rat Fleas; Correlation Between Prevalence of Xenopsylla Cheopis and Plague Mortality. F. W. Cragg.—p. 953.
*Zoophilism of Anopheles in Relation to Epidemiology of Malaria in India: Suggestion. F. W. Cragg.—p. 962.
Inapplicability of "Mills-Reincke Phenomenon" to Indian Conditions. T. N. S. Raghava Chari.—p. 965.
Bionomics of Xenopsylla Astia, Rothsch. F. W. Cragg and C. S. Swaminath.—p. 979.
Development of Protection After Prophylactic Inoculation. W. F. Harvey, K. R. K., Iyengar.—p. 990.
Structure of Salivary Pump in Certain Blood Sucking and Other Insects. J. W. Cornwall.—p. 996.
New East African Anopheline (A. Kingi) Related to A. Natalensis, Hill and Haydon, and A. Watsoni, Leicester. S. R. Christophers.—p. 1008.
*Examination into Degree of Efficacy of Antirabic Treatment. II. W. F. Harvey and H. W. Acton.—p. 1020.
Pathogenic Material Examination. IX. W. F. Harvey.—p. 1078.
Case of Dextrocardia in Mouse. L. A. P. Anderson.—p. 1117.
Method of Fumigation of Grain by Hydrocyanic Acid Gas on Small Scale. L. A. P. Anderson.—p. 1119.
Certain Fallacies Associated with Use of Laboratory Animals for Isolating Pathogenic Micro-Organisms. R. H. Malone.—p. 1123.
*Necessity for Standard for Vaccine Lymph; New Test. J. Cunningham and J. A. Cruickshank.—p. 1127.

Prediction of Malaria Epidemics. Special Reference to Actual Forecast in 1921. C. A. Gill.—p. 1136.
*Method of Estimating Degree of Solubility of Micro-Organisms in Bile and "Bile Salt" Solutions. R. H. Malone.—p. 1144.
Duration of Protection After Prophylactic Inoculation. W. F. Harvey and K. R. K. Iyengar.—p. 1147.
Record of Kala-Azar Research Work Carried Out at King Edward VII Memorial Pasteur Institute, Shillong, During 1922. H. E. Shortt.—p. 1150.
Bovine Tuberculosis in Bombay Presidency. ♦M. H. Sowerby.—p. 1169.

Cause of Suprarenal Hypertrophy in Inanition.—McCarrison's observations provide evidence that (*a*) the enlargement—with increased epinephrin content—of the suprarenals in inanition and in avitaminosis may be correlated with the acidosis associated with these states. Its occurrence, for the most part, during the terminal phases of avitaminosis, its association with marked respiratory disturbances, with oxygen want, with falling body temperature, and with interference with oxygenation, and its rapid disappearance on providing the missing vitamins, suggest it is an emergency effort on the part of the suprarenals to compensate for these changes. (*b*) While the attempted exercise of an emergency function by the suprarenals may be expected to occur in conditions of grave acidosis, the effect of lesser degrees of acidosis will be to enhance the action of such amounts of epinephrin as are normally discharged by the suprarenals.

Dermal Leishmaniasis.—The case of cutaneous leishmaniasis due to *Leishmania donovani* reported by Brahmachari proves for the first time that these parasites can sometimes produce skin manifestations in man without producing visceral lesions. This condition followed antimonial treatment of kala-azar.

Relationship Between Cheopis and Plague.—Cragg points out that if cheopis is the carrier of plague while astia is not, the plague problem is far less complicated than was that of malaria. The incidence of the disease would appear to be governed by the pravalence of cheopis on rats, and by the duration of the season favorable for its rapid reproduction. The question can be solved only by experiments to ascertain if *Xenopsylla astia* can transmit plague from rat to rat, and by a comparative study of the bionomics of the two species.

Zoophilism of Anopheles in Relation to Malaria.—Cragg directs attention to the fact that many species of Anopheles feed on cattle as well as on man. Malaria is prevalent in India after the autumnal rains in normal years. In some years it has the proportions of a severe and widespread epidemic, and is the cause of great mortality. An unusually heavy rainfall is not necessarily followed by a severe epidemic. The circumstance most favorable to epidemic conditions is a heavy rainfall following a year, or series of years, in which the rainfall has been deficient. A partial or complete failure of the rains is inevitably followed by failure of crops on unirrigated land, and means famine. The epidemic of malaria thus falls on people whose resistance is below normal. For a few months after the rains there is abundant fodder everywhere, and cattle grow fat. When the rains fail, the cattle are first to suffer, and the weaklings die, or are slaughtered for their hides. In ordinary village life the association between cattle and the inhabitants is very close. Human blood and cattle blood are therefore equally available for mosquitoes. The proximity of cattle at night serves as at least a partial protection in normal times. In great epidemics, the number of mosquitoes is increased by heavy rains, and the number of cattle is decreased in proportion to the preceding drought. Hence, the loss of cattle is a factor of first importance in causing great epidemics of malaria in India.

Efficacy of Rabies Virus.—Harvey and Acton's investigation shows again that some protection is afforded by subcutaneous injections of rabies virus. In man they had as good results with phenolized vaccine as with the dried cord treatment. Their experimental work confirms their statistical findings. Another point brought out by their statistical investigation is that legislation is highly effective in reducing the mortality from rabies. A thorough going campaign against animals which transmit the infection seems to be the most logical method for its elimination.

Standard for Vaccine Lymph.—Cunningham and Cruickshank devised a method which utilizes the dilution principle as a means of standardizing vaccine lymph. The results are estimated by means of the number of discrete vesicles per linear inch of surface sown. The method gives consistent results under experimental conditions and also when tested in the field against vaccination on the human subject.

Solubility of Micro-Organisms in Bile.—The method described by Malone has reference particularly to the action of sodium taurocholate on members of the pneumococcus-streptococcus group but is equally applicable where the action of whole bile or any of the bile salts on other groups of organisms is the subject of investigation. The principle of the method is that the opacity of a given bacterial suspension is directly proportional to the weight of the bacteria per unit volume of that suspension. In the "bile solubility" test described, the opacity of a suspension of the test organism is estimated by comparison with the standard set of opacity tubes before and after the addition of the solvent (bile or bile salts); the difference between the two readings is a measure of the degree of solubility of the organism tested.

Indian Medical Record, Calcutta

43: 337-368 (Dec.) 1923

Public Health. K. C. Dube.—p. 337.
Ayurvedic Bacteriology. G. Kalokhe.—p. 338.
Dyspepsia and Its Self Treatment. J. Ganguli.—p. 341.
Use and Abuse of Fat. N. B. Dutt.—p. 349.
Premature Rupture of Membranes. S. Ambrose.—p. 351.
Pituitary. S. K. Mukherji.—p. 351.

Journal of Physiology, London

58: 111-258 (Dec.) 1923

*Regulation of Respiration. II. Normal Type. T. Lumsden.—p. 111.
*Anaerobic Processes Involved in Muscular Activity. W. Hartree and A. V. Hill.—p. 127.
Taking Up of Carbon Monoxid by Hemoglobin in Spleen. J. Barcroft and H. Barcroft.—p. 138.
*Effect of External Temperature on Circulation in Man. J. Barcroft and E. K. Marshall.—p. 145.
*Variations in Blood Chlorids in Relation to Meals. E. C. Dodds and K. S. Smith.—p. 157.
Heat of Combustion of Glycogen in Relation to Muscular Contraction. W. K. Slater.—p. 163.
*Localization of Vasomotor Center. J. M. D. Scott and F. Roberts.—p. 168.
*Quantitative Comparison Between Energy Liberated and Work Performed by Isolated Sartorius Muscle of Frog. W. O. Fenn.—p. 175.
Reversion of Hemolysis. R. Brinkman and A. v. Szent-Gyorgyi.—p. 204.
*Frequency of Discharge from Spinal Cord in Frog. S. Cooper and E. D. Adrian.—p. 209.
Excretion of Cholin in Urine. W. F. Shanks.—p. 230.
*Influence of Diuretics on Excretion of Sugar. E. J. Conway.—p. 234.
Suprarenal Cortex of Male Throughout Estrous Cycle. A. Watson.—p. 240.
*Concentration of Lactic Acid in Blood in Experimental Alkalemia and Acidemia. G. V. Anrep and R. K. Cannan.—p. 244.

Regulation of Respiration by Carbon Dioxid.—Apart from vagal influences, e. g., after vagotomy, Lumsden says, the height and depth of unconscious breathing is determined primarily by the stimulating effect which carbon dioxid excess exerts on the apneustic, and when the excess is pronounced, on the expiratory centers. This confirms Holdane's views.

Processes Involved in Muscular Activity.—Hartree and Hill confirm the small delayed heat production occurring in the complete absence of oxygen in an excited muscle. The rate of evolution of this heat appears to be unaffected by temperature, and its most probable total value is about 0.25 per cent. of the inital heat. Accepting this value, a "balance sheet" (final as regards methods at present available) is given of heat evolved in different phases of muscular contration, reckoned in calories per gram of lactic acid set free. From this it appears that in the process of recovery something between 1 part in 4.7 and 1 part in 6 of the lactic acid removed is oxidized, the remainder being retained as glycogen.

Effect of Temperature on Circulation.—Barcroft and Marshall describe a method by which the pressure of oxygen in mixed venous blood can be determined more simply and quickly than by the triple extrapolation method of Redfield, Bock and Meakins. The minute volume measurements based on this method agree with those of other workers in showing great differences in different persons. This divergence is to some extent due to the length of time which different individuals require to reach a steady state. In man exposure to cold till the point of shivering is nearly reached increases

the minute volume while it slows the pulse, thus producing a large alteration in the systolic output. Exposure to warmth of a person whose minute volume adapts itself quickly, raises the same by 3 or 4 liters—a quantity which probably is a rough measure of the blood flow through the skin. At low minute volumes below 8 liters the systolic output is susceptible of great alterations.

Variation in Blood Chlorids After Meals.—The chlorid content of whole blood, plasma and corpuscles was investigated by Dodds and Smith at various times after a meal with the following results: (*a*) During the first forty minutes, the whole blood, plasma, and corpuscle chlorid content showed a fall. (*b*) During the period between forty-five and ninety minutes after a meal, the whole blood chlorid content showed a recovery to its normal figure, while the corpuscles showed a marked increase above the normal value. The plasma remained about the same as in the former group. (*c*) From ninety to 135 minutes following the meal the whole blood chlorid content had again fallen slightly. The plasma and corpuscle values showed a partial return to the initial values.

Localization of Vasomotor Center.—Scott and Roberts have confirmed the existence of a "depressor point" in the area postrema. It coincides with the so-called "cardio-inhibitory center." They believe it represents a point where afferent vagal fibers belonging to the depressor occupy a superficial position. There is free decussation of cardio-inhibitory fibers between the two depressor points. The rise of pressure obtained sometimes from the fovea inferior is part of a mixed effect which for the present defies analysis. There is not sufficient evidence to localize a "vasoconstrictor center" here. Stimulation of the surface of the medulla gives no evidence of the existence of a vasotonic as distinct from a vasoreflex center, or of the existence of a vasodilator center.

Muscle Activity and Oxygen Consumption.—The experiments reported by Fenn provide a new explanation of the parallelism between the work of the heart and its oxygen consumption.

Frequency of Discharge from Spinal Cord.—Cooper and Adrian examined the effect of temperature alterations in spinal frogs and found that they do not support the view that discharge from the cord is too rapid for the muscle to follow. The nerve cells in the spinal cord of the frog do not discharge impulses at a frequency greater than about 120 per second at 15 C.

Influence of Diuretics on Sugar Excretion.—Experiments by Conway on rabbits under anesthesia showed that sodium sulphate, phosphate, bicarbonate, iodid and urea, injected in solution isosmotic with blood and in 30 c.c. quantity caused a marked fall in the glucose concentration in the urine and generally a fall in total output of glucose. This fall of concentration in glucose increases according to the degree of diuresis, and its relation to the change in flow of urine follows a simple empirical law.

Concentration of Lactic Acid in Blood.—Anrep and Cannan state that the concentration of lactic acid in blood rises when the alkalinity of the blood is increased. A fall in the alkalinity is followed by a reduction of the lactic acid. It is suggested that the observed regulation of the concentration of lactic acid in the blood is not determined, primarily, by the oxygen tension or the carbon dioxid tension but by the reaction of the blood. The mechanism of the removal of lactic acid from the blood, and, in part, its production in the blood, is resident in the tissues. The mechanism regulating the lactic acid concentration of the blood forms with the primary and secondary buffering systems a third line of defense against excessive changes in the reaction of blood.

Medical Journal of Australia, Sydney

2: 625-648 (Dec. 15) 1923

Malaria at Rabaul. G. A. M. Heydon.—p. 625.
Irreducible Intussusception in Children; Successful Resection in Two Cases. H. Rischbieth.—p. 633.

2: 649-674 (Dec. 22) 1923

Medical Societies of Queensland. D. Cameron.—p. 649.

2: 675-693 (Dec. 29) 1923

Intestinal Protozoal Cysts in Man at Townsville, North Queensland. H. H. Willis.—p. 682.

South African Medical Record, Cape Town

21: 557-576 (Dec. 22) 1923

*Cyclic Vomiting in Children. G. Fismer.—p. 561.
Treatment of Bilharzia Disease. J. B. Christopherson.—p. 566.

Sodium Bicarbonate for Cyclic Vomiting in Children.—Fismer agrees with others that the treatment of cyclic vomiting in children by sodium bicarbonate is most satisfactory in preventing attacks. In a severe case, in which attacks of vomiting recurred every three or four months, he was able to prevent the attacks by giving sodium bicarbonate and potassium bicarbonate, 10 grains each, three times a day, for one week in every month. On several occasions the mixture was stopped for longer periods, and the attacks of vomiting recurred.

Bulletin de l'Académie de Médecine, Paris

91: 25-67 (Jan. 8) 1924

Classification of Mental Diseases. M. de Fleury.—p. 45.
*Suffocation by a Pacifier. Balthazard and Duvin.—p. 56.
*Treatment of Trachoma. W. Nicati.—p. 62.
Observations on Algae (Spirogyra). L. Lapicque.—p. 64.

Suffocation by a Pacifier.—Balthazard and Duvin report the fatal case mentioned in the Paris Letter, February 16. Such accidents aid the propaganda in favor of a bill now under discussion prohibiting the sale of all sorts of pacifiers.

Treatment of Trachoma.—Nicati injects in trachoma 2 c.c. of a 0.1 per cent. solution of copper sulphate and increases the dose up to 1 c.c. of a 1 per cent. solution, adding an anesthetic. The injection is made under the retropalpebral conjunctiva after eversion of the upper lid. It is repeated soon after disappearance of the chemosis, which takes place within eight to fifteen days.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 1821-1892 (Dec. 28) 1923

*Insulin in Tuberculous Diabetics. M. Labbé et al.—p. 1821.
*Polyarthritis After Pains in Teeth. J. Troisier et al.—p. 1828.
*Trophedema. A. Léri and N. Péron.—p. 1834.
Measles Meningitis. G. Laroche and Quioc.—p. 1841.
Leishmaniasis of the External Ear. Oeconomou and Petzetakis.—p. 1846.
*Cephalalgia from Bismuth. Bensaude, Cain and Oury.—p. 1852.
Paratyphoid Septicemia. Louis and Trabaud.—p. 1866.
Radiodiagnosis of Suprarenal Tumor. Sézary and Lomon.—p. 1870.

Insulin in Tuberculous Diabetics.—Labbé, Bith and Boulin treated four tuberculous diabetics with insulin. There was no unfavorable influence on the tuberculosis.

Polyarthritis After Pains in Teeth.—Troisier, Raoul and Leboucher publish the histories of two patients with acute polyarthritis. The disease had been preceded by pains in all the teeth. There were no alveolar abscesses. The authors treated the patients conservatively.

Trophedema.—Léri and Péron report two cases of trophedema of a lower extremity. One of them was associated with occult spina bifida. The roots of the nerves of the affected extremity were much thinner than on the other side. Another case was caused by lymph stasis due to calcified glands.

Cephalalgia from Bismuth.—Bensaude, Cain and Oury draw attention to the cephalalgia which may occur during treatment of gastro-intestinal diseases by bismuth subnitrate. It is a minor sign of intoxication, and appears between five minutes and two hours after the intake.

48: 1-22 (Jan. 11) 1924

Treatment of Myeloid Leukemia. C. Aubertin.—p. 4.
Acute Leukemia. C. Aubertin and P. Grellety-Bosviel.—p. 8.
*Sequelae of Chest Wounds. Brelet.—p. 11.
Cryptogenous Colon Bacillus Sepsis. Delater.—p. 14.
Syndrome from Action of Toxins on the Pons. C. Vincent and J. Darquier.—p. 18.

Sequelae of Chest Wounds.—Brelet examined thirty-four men who had received penetrating wounds of the chest during the war. In thirteen of them—mostly bullet wounds—there remained hardly anything, he says, except the "remembrance of their glorious wound" for which they were applying for a pension. Seventeen had more or less pronounced sequelae, especially a thickening of the pleura. Three were tuberculous.

Gynécologie et Obstétrique, Paris

8: 495-642 (Dec.) 1923

*Uteroplacental Hemorrhage. Nubiola.—p. 495.
Cylindroma of the Uterus. A. Babès.—p. 508.
*Corpus Luteum and Menstruation. G. Cotte.—p. 517.
Chorio-Epithelioma of the Broad Ligament. Bergeret and P. Moulonguet.—p. 528.
*The Pelvis in Infantile Paralysis. A. Laffont and E. Gaujoux.—p. 540.

Uteroplacental Hemorrhage.—Nubiola has found histolysis of numerous villi in uteroplacental apoplexy. He considers the condition as a manifestation of toxemia of pregnancy.

Corpus Luteum and Menstruation.—Cotte's observations prove that any gynecologic operation may provoke the appearance of menstruation. He believes that it is probably due to a direct irritation of the nerves of the ovary.

The Pelvis in Infantile Paralysis.—Laffont and Gaujoux publish their observations on the obstetric sequelae of infantile poliomyelitis. The pelvis can be affected directly by atrophy, and indirectly by limping.

Paris Médical

1-36 (Jan. 5) 1924

Tuberculosis in 1924. P. Lereboullet and L. Petit.—p. 1.
*Fissures Limiting Tuberculous Lesions. Sergent and Durand.—p. 17.
*Associated Infections in Tuberculosis. Courmont and Boissel.—p. 18.
Artificial Pneumothorax. Gaussel.—p. 22.
*The Tubercle Bacillus. A. Vaudremer.—p. 26.
*Cutireaction in Adenopathies. J. Genévrier.—p. 32.

Fissural Limitations of Tuberculosis.—Sergent and Durand discuss the significance of the interlobar fissure as a limitation of the progress of tuberculosis of one lobe. The radioscopic "pneumonic triangle" lies in tuberculosis on the fissure.

Associated Infections in Tuberculosis.—Courmont and Boissel found in 20 per cent. of 188 tuberculous patients a large amount of associated micro-organisms. They observed an infection of three tuberculous patients by a man who had *Bacterium cutis-commune*. The original process is always aggravated by such a secondary infection.

The Tubercle Bacillus.—Vaudremer deals especially with the granular form of *Bacillus tuberculosis*.

The Skin Tuberculin Reaction in Glandular Disease.—Genévrier emphasizes the importance of a repeatedly negative cutireaction for the exclusion of a possibility of a tuberculous etiology for enlargement of tracheobronchial lymphatic glands.

Presse Médicale, Paris

32: 45-56 (Jan. 16) 1924

*Toxicity of the Serum in Epilepsy. P. Pagniez.—p. 45.
Gastrotonometry and Pneumatic Massage. R. Gaultier.—p. 47.
*Bactericidal Vaccine Dressings. Bass, Soupault and Brouet.—p. 48.

Toxicity of the Serum in Epilepsy.—Pagniez produced clonic spasms in guinea-pigs after injection into the carotid artery of about 1 c.c. of serum from epileptics. Serum from a few patients with paralysis agitans acted in a similar way. The toxicity varies. No rule could be detected except that the toxicity is usually lower after a seizure. Only two out of sixteen epileptics had toxic cerebrospinal fluid.

Bactericidal Vaccine Dressings.—Bass, Soupault and Brouet treated various purulent affections with Besredka's method: The germs (streptococci, staphylococci and pyocyaneus) are not killed; only the filtrates, free from bacilli, are used for dressings, which are applied for a day. Local instillations or intracutaneous injections, especially around the diseased part, were also used. They report excellent results in lymphangitis, furuncles, anthrax, osteomyelitis and other diseases.

Progrès Médical, Paris

37-48 (Jan. 19) 1924

*Decholesterolization. M. Loeper.—p. 37.
Fibroma of Abdominal Wall. Laporte.—p. 40.

Decholesterolization.—In order to reduce hypercholesterolemia, Loeper takes the excretion of cholesterol by the bile as the point of attack. Sodium benzoate, salicylate and other sodium salts increase the secretion of bile. Antipyrin decreases it, and is therefore contraindicated. Most of the laxatives are of little value. Doses of 10 gm. of sodium sulphate, repeated for three days, act very favorably. Eggs, brain and fats increase the amount of blood cholesterol.

Schweizerische medizinische Wochenschrift, Basel

54: 77-96 (Jan. 17) 1924

Physicians and Birth Control. A. Labhardt.—p. 77. Cont'd.
*Hemophilic Conditions. R. Feissly.—p. 81.
Abdominoscopy. O. P. Steiner.—p. 84.
Serodiagnosis in Ocular Tuberculosis. N. Szymanski.—p. 87.
Pandemic Influenza. J. Seitz.—p. 89.
Sahli's Arteriometry. E. Attinger.—p. 90. Reply. Sahli.—p. 91.

Hemophilic Conditions.—Feissly discusses the pathogenesis and treatment of hemophilic conditions. He emphasizes the beneficial effect of transfusion of 20 c.c. of blood in dangerous hemorrhages in such subjects.

Schweizer Archiv für Neurol. u. Psychiatrie, Zurich

13: 5-709, 1923. Monakow Festschrift

C. von Monakow's Contributions to Science. C. Winkler.—p. 11.
*Epilepsy in Parrots. F. de Allende-Navarro.—p. 25.
*Cortex Function by Associative Motor Reflexes. W. Bechterew.—p. 61.
*Cog-Wheel Motor Phenomenon. R. Bing.—p. 77.
*Hallucinations. E. Bleuler.—p. 88.
Senescence of Neuroglia. E. Blum.—p. 99.
Characterology. W. Boven.—p. 109.
*Projection of Retina on Primary Centers. B. Brouwer et al.—p. 118.
Conduction of Reflex Activity. T. Graham Brown.—p. 138.
Brain of Insects. R. Brun.—p. 144.
Conduction of Pain. H. Brunschweiler.—p. 173.
Stains for Neuroglia. S. Ramón Cajal.—p. 187.
*Osteomyelitis of Vertebrae. P. Clairmont.—p. 194.
The Subconscious Mind. E. Claparède.—p. 200.
Cranial Capacity of Guinea-Pigs. H. H. Donaldson.—p. 206.
Subendocardiac Nerve Cells. M. Eiger.—p. 223.
Extrapyramidal Motility. E. Flatau.—p. 233.
Vestibular Nerve. G. Fuse.—p. 251.
Choked Disk in Hydrocephalus. S. Goldflam.—p. 261.
*Restitution in Hemianopia. K. Goldstein.—p. 283.
Hereditary Ataxia in Switzerland. E. Hanhart.—p. 297.
Acute Verbal Aphasia. H. Head.—p. 313.
Myelinization of Rabbit Brain. G. Hirako.—p. 325.
Development of Corpus Striatum. C. U. Ariens Kappers.—p. 348.
Sleep in the Insane. C. Ladame.—p. 371.
Relation of Claustrum to Olfactory Tract. E. Landau.—p. 391.
Brain Tumors Simulating Meningitis. E. Long.—p. 401.
*The Red Nucleus and Posture. Magnus and Rademaker.—p. 408.
Atypical Epidemic Encephalitis. H. W. Maier.—p. 412.
Acoustic Striae. O. Marburg.—p. 419.
*Planotopokinesia. P. Marie and H. Bouttier.—p. 428.
*Treatment of Arterial Spasms. E. Meyer.—p. 440.
Aphasia. G. Mingazzini.—p. 447.
Similarity or Polymorphism in Heredity? E. Minkowski.—p. 458.
*The Plantar Reflex. M. Minkowski.—p. 475.
*Uremia and the Choroid Plexus. P. von Monakow.—p. 515.
The Suprarenals in Nervous and Mental Disease. F. W. Mott.—p. 526.
Law of Agglutinated Causality. R. Mourgue.—p. 537.
Development of Neurology. F. Müller.—p. 543.
Diplegia and Thyroid Disturbance in Defective Children. F. Naville.—p. 559.
Excitability of the Brain Cortex. I. P. Pawlow.—p. 568.
Biologic Psychiatry. J. Piltz.—p. 575.
Histology of Nerves. K. Schaffer.—p. 588.
Psychoneuroses. L. Schnyder.—p. 593.
*Barrier Between Blood and Cerebrospinal Fluid. L. Stern.—p. 604.
The Celiac Reflex. André-Thomas.—p. 617.
*Treatment with Bromids. A. Ulrich.—p. 622.
Remnants of Speech and Affect. C. T. van Valkenburg.—p. 631.
*Diaschisis. O. Veraguth.—p. 644.
Relations Between Cortex and Thalamus. J. M. de Villaverde.—p. 665.
Granular Layer of Cerebellum. E. de Vries.—p. 675.
Neocerebellum and Paleocerebellum. C. Winkler.—p. 684.
Contact Membranes and the Brain. H. Zangger.—p. 703.

Epilepsy in Parrots.—Allende-Navarro reports the history and histologic findings in two epileptic parrots. The epilepsy developed in each some time after a psychic shock. Both presented disturbances of "speech."

Cortex Function by Associative Motor Reflexes.—Bechterew reports recent experiments on the function of the cortex. His pupils observed changes of associative reflexes after extirpation of parts of the brain. The cortex cannot be divided into a series of sensory and motor centers. It consists of regions which perform the next associative reflexes connected with one or the other receptive organ.

Cog-Wheel Motor Phenomenon.—Bing calls attention to the "cog-wheel phenomenon" described in 1901 by Camillo Negro in paralysis agitans. It is also present in post-encephalitic parkinsonism. When passively flexing repeatedly the forearm of a patient, a staccato movement is felt. Bing observed that the jerking contraction occurs in the muscles which are lengthened (biceps in passive extension, triceps in flexion). He explains the phenomenon as a sign of dis-

turbance of Sherrington's "reciprocal innervation of antagonists," due to lesions in the mesencephalon.

Hallucinations.—Bleuler believes that a part of the hallucination is due to a weakness of inhibition of remnants of sensory impressions.

Projection of Retina on Primary Centers.—Brouwer publishes details of the research he made with Zeeman and Houwer on the localization of the fiber bundles from different parts of the rabbit retina in the optic nerve, corpus geniculatum externum and corpus quadrigeminum anterius.

Osteomyelitis of Vertebrae.—Clairmont describes a case of rapidly increasing paraparesis in a man who fourteen days before had had a felon. Lumbar puncture revealed pus with staphylococci. Immediate laminectomy confirmed the diagnosis of "osteomyelitis of a vertebra," and the patient practically recovered thereafter.

Restitution After Brain Lesions.—Goldstein discusses the question why people suffering from hemianopia usually do not know about it. Fuchs in his institute found that they change the axis of their vision so that a new center ("pseudofovea") is formed, which acquires the sharpest vision. It is surrounded by seeing parts instead of being at the edge of them. This change does not occur in mere amblyopia.

The Red Nucleus and Posture.—Magnus and Rademaker destroyed the largest part of the efferent fiber bundles from the nucleus ruber. They produced by this decerebrate rigidity and loss of the labyrinth posture reflexes.

Planotopokinesia.—Marie and Bouttier publish two cases of apraxia due to a disturbance in geometric orientation. Marie and Bailey call this syndrome "planotopokinesia."

Treatment of Arterial Spasms.—Meyer injects by the vein 10 c.c. of a 20 per cent. solution of glucose in essential hypertension and angina pectoris. The blood pressure becomes lower in half an hour or later, and does not rise in favorable cases for a few days. The method is useless in nephritis hypertension.

The Plantar Reflex.—Minkowski deals with the ontogenesis, central localization and pathology of the plantar reflex. He has observed it as early as in the second month of fetal life.

Uremia and the Choroid Plexus.—Monakow describes changes in the choroid plexus in uremia and in nephrectomized rabbits.

The Barrier Between Blood and Cerebrospinal Fluid.—Stern reports further experiments on artificial changes of the "hemato-encephalic barrier." Chronic intoxication with alcohol, morphin or arsenic did not diminish its resistance. Acute intoxication with bacterial toxins (diphtheria, tuberculosis, tetanus) increased the permeability of the barrier for substances present in the blood. She believes that this fact might be utilized for therapeutic introduction of substances which otherwise would not pass into the cerebrospinal fluid.

Treatment with Bromids.—Ulrich finds that determination of the bromin and chlorin in the urine is absolutely necessary for the rational treatment of epilepsy with bromids.

Diaschisis.—Veraguth explains Monakow's theory of diaschisis.

Archivio Italiano di Chirurgia, Bologna

8: 345-476 (Dec.) 1923

*The Urine and Blood Under Chloroform. G. Roello.—p. 345.
Treatment of Disturbance from Gastroptosis. P. Bastianelli.—p. 387.
*Exclusion of the Pylorus. C. Silvan.—p. 401.
*Trauma and Tuberculosis. B. Polettini.—p. 429.
Congenital Median Fistula of the Neck. U. Piola.—p. 441.
*Surgical Stenosis of Femoral Artery. G. Pieri.—p. 447.
Healing of Fractures in Avitaminosis. I. Sacchetto.—p. 452.

Chloroform Anesthesia for Children.—Roello's research on the blood and urine of thirty-six children before and after chloroform anesthesia has confirmed the extreme tolerance of even young children for this anesthetic. The most appreciable effect is the drop in the hemoglobin percentage as the hemoglobin combines with the chloroform.

Exclusion of the Pylorus.—None of Silvan's thirteen patients treated by exclusion of the pylorus has displayed any tendency to peptic ulcer during the years since, while all were remarkably benefited by the intervention.

Trauma and Tuberculosis.—Polettini's experimental research (guinea-pigs and rabbits) has confirmed that local trauma may attract metastasis of tuberculosis to the injured region. Certain organs present a special predisposition for this, especially the lungs, while others prove constantly resistant.

Treatment of Edema of the Leg.—The edema was consecutive to phlebitis in Pieri's case, and it subsided after he had cut out an ellipse in the wall of the femoral artery. This simple surgical stenosis reduced the lumen of the artery.

Pediatria, Naples

32: 57-120 (Jan. 15) 1924

*Bacillus Abortus and Malta Fever. L. Auricchio.—p. 57.
*Jaundice in the New-Born. R. Follitzer.—p. 69.
Rat-Bite Disease. S. Ciaccia.—p. 92.
Pathology of the Only Child. I. Nasso.—p. 101.

Immunologic Identity of Bacillus Abortus and Malta Fever Germ.—Auricchio found a perfect identity of immunologic tests between the germ of Malta fever and *Bacillus abortus.* Children with Malta fever were treated with *Bacillus abortus* vaccines with as good results, and even more active serologic reactions, as when specific Malta fever vaccine had been injected.

Jaundice in the New-Born.—Pollitzer found autohemolysins in the serum of those new-born with jaundice who had an increased resistance of erythrocytes. Autolysins were not demonstrable if the resistance was diminished. He believes that this is due to a fixation of the lysin to the erythrocytes.

Policlinico, Rome

31: 1-64 (Jan. 1) 1924

*Gummatous Meningo-Encephalitis. F. Giannuli.—p. 1.
Subarachnoid Tumors. A. Nazari.—p. 33.
Insulin and the Sympathetic. D. Maselli.—p. 44.
Tonus and Movement. G. Mingazzini.—p. 50.

Gummatous Meningo-Encephalitis.—Giannuli describes a case of gumma affecting the prefrontal lobe, and discusses the ectodermal and mesodermal manifestations of syphilis.

Crónica Médica, Lima

40: 361-392 (Nov.) 1923

*"Mossy Foot." H. M. Rojas.—p. 361.
Appendicitis in Children. J. A. Caballero.—p. 381.

40: 393-424 (Dec.) 1923

Malignant Ulcerative Endocarditis. A. L. Barton.—p. 393.
Treatment of Cervicitis. E. Bello.—p. 399.
Epidemic Encephalitis in Peru. L. D. Espejo.—p. 403. Cont'n.

Mossy Foot in Peru.—Rojas presents several colored plates and other illustrations to sustain his assertions that what is called mossy foot is not a clinical entity. It is merely an elephantiasic condition of the leg and foot. For this some leishman lesion of the skin may be responsible or anything interfering with the circulation of lymph, but recurring erysipelas is the most common factor, inducing a chronic sclerous dermatitis. In one of his cases the condition developed after removal of the inguinal glands on that side; cicatricial changes had evidently hampered the circulation of lymph below. The papillomatous aspect of the elephantiasis is probably due mostly to the recurring erysipelas. His attempts to transmit the mossy foot condition to rabbits constantly failed. One practical conclusion from his research is the warning to be wary with resection of glands for fear of development of elephantiasis later.

Prensa Médica Argentina, Buenos Aires

10: 529-552 (Dec. 30) 1923

*Hemorrhagic Purpuras. M. R. Castex and Ramón Lorenzo.—p. 529.
*Epileptic Seizures in Infant. J. C. Vivaldo.—p. 532.
Rat Tapeworm in Infant. D. Greenway.—p. 537.
Destructive Cutaneous Leishmaniasis. P. L. Baliña.—p. 539.
Tuberculous Lesions on Soft Palate Resembling Lupus. Idem.—p. 542.
Ether in Whooping Cough. M. P. Cabella and Hirschi.—p. 543.
Albumin Milk for Sick Infants. F. Schweizer.—p. 544.

Hemorrhagic Purpura.—Castex and Lorenzo report another case of hemorrhagic purpura in which the absolute symmetry of the purpura patches suggested disease in the centers regulating the nutrition of the vessels. Their study of the midbrain and spinal cord disclosed severe cellular changes in the

superior lateral sympathetic nucleus, which Müller calls the intermediate lateral tracts. The photomicrographs of these centers show lesions practically identical with those published from a previous case.

Convulsions in Infancy.—Vivaldo calls attention to the frequent history of convulsions in infancy in cases of epilepsy developing at puberty or later. The infants were given no special treatment for their convulsions, but he is convinced that in many cases the convulsions might have been traced to inherited syphilis, and prompt treatment for this might have averted the epilepsy years later. Convulsions in a young child should always be traced to their source, and the case should not be casually dismissed after subsidence of the convulsions under symptomatic measures. In a case described the convulsions were of a true epileptic nature, and there has been no recurrence since treatment of the inherited syphilis.

Revista de Medicina y Cirugía, Havana

28: 727-770 (Nov.) 1923

*Secondary Jejunal Ulcer. Donato González Mármol.—p. 727.
The Wassermann Reaction by Kolmer's Technic. O. Nodarse.—p. 744.
Reproduction of Hypertrophied Prostate. Casariego.—p. 757.

Peptic Ulcer.—In the first of González Mármol's two cases, the jejunal ulcer had developed four months after a gastro-enterostomy, and perforation occurred. As this was being sutured, the man vomited, retched and suffocated. The perforation was opposite the opening into the stomach. There was merely denudation of the intestinal mucosa, with no signs of ulceration, and nothing could be found of the assumed primary gastric ulcer. In the second case a fistula developed between the jejunum and the colon the third year after gastro-enterostomy had relieved the patient from his former severe stomach disturbances.

Archiv für Verdauungskrankheiten, Berlin

32: 89-200 (Dec.) 1923

Insulin Treatment. H. Strauss and M. Simon.—p. 89.
Chronic Pancreatitis. W. Filinski.—p. 125.
Occult Bleeding. J. Vándorfy.—p. 133.
*Prognosis of Dysentery. C. Froemsdorff.—p. 143.
*Jaundice. G. Felsenreich and O. Satke.—p. 149. Conc'n.
*Fruits and Gastric Secretion. R. Pavlovic.—p. 179.
Gastric Elimination of Dyes. E. Fricker.—p. 183.
*Deformity of Duodenum. T. Bársony and G. Szemzö.—p. 185.
Cancer in Dilated Esophagus. W. Bauermeister.—p. 189.
*Treatment of Peptic Ulcer. R. Kovjanic.—p. 191.

Prognosis of Dysentery.—Froemsdorff had a mortality of 16.4 per cent. among his 525 patients with dysentery (mostly Y, less Shiga, rarely Flexner). He investigated the further fate of 210 patients. In 83 per cent. they were definitely cured; 15 per cent. had some disturbances, and only 1.43 per cent. became chronic.

Jaundice.—Felsenreich and Satke conclude their observations on simple icterus. One type is due to a catarrh affecting the duodenum, the other is a diffuse affection of the parenchyma of the liver from an infectious agent. Combinations of both forms are the main subject of this last paper.

Fruits and Gastric Secretion.—Pavlovic found an increase in the free hydrochloric acid in the gastric juice after drinking raw apple juice. Ingestion by stomach tube, boiling, or eating the raw apple had no effect. Lemon juice did not increase the acidity much, and orange juice not at all.

Deformity of the First Portion of the Duodenum.—Bársony and Szemzö point out that deformity of the bulbus of the duodenum may remain after complete cure of the ulcer.

Treatment of Chronic Peptic Ulcers.—Kovjanic prescribes 1 gm. of a mixture of equal parts of bismuth subnitrate or subsalicylate and of magnesium peroxid in 100 gm. water three times daily. The mixture has to be taken at least half an hour before the meal. He reports cures within six to eight weeks. A little sodium bicarbonate after the meal, and preparations of atropin are helpful.

Deutsches Archiv für klinische Medizin, Leipzig

143: 193-272 (Dec.) 1923

*Respiratory Movements. W. Weitz.—p. 193.
*Treatment of Typhoid. H. K. von Winterfeld.—p. 213.
*Virulence of Typhoid. H. Nagell.—p. 218.
*Distribution of Albumins. K. Gutzeit.—p. 238.
*Hypertension and Dyspnea. R. Cobet.—p. 253.

Respiratory Movements. — Weitz observed the shadow thrown on a white surface by healthy and sick subjects. The light was 6 meters distant. He reports his observations on respiratory movements gained by this method.

Treatment of Typhoid.—Winterfeld treated ten sporadic cases of typhoid with intracutaneous injections of an autovaccine. He had a very good impression of the effects, and tried the method again in a severe epidemic of thirty cases. The failure was complete. The only gain was in the observation that light cases show a strong local reaction, while it is weak or absent when the prognosis is bad.

Virulence of Typhoid.—Nagell used Philipp's method for determination of the virulence of germs (reported here, p. 75, Jan. 2, 1924). The method is of no use in typhoid and chronic infectious endocarditis. Autovaccines did not change the bactericidal power of the blood in typhoid. It was increased in the patient with streptococcus endocarditis. He died just the same.

Distribution of Albumins and Globulins.—Gutzeit observed a change of a part of an albumin solution into a globulin after a few days of dialysis at room temperature. Perfusion of rabbits showed that the tissue fluid contains more globulins than the blood serum.

Hypertension and Dyspnea.—Cobet found a slight irritation of the vasomotor centers in persons inhaling air with carbon dioxid. If it lowers the hydrogen ion concentration of the blood so that the dyspnea is hardly tolerable, the blood pressure increase is only about 20 mm. mercury. A decrease in the oxygen content of the blood amounting to 25 per cent. or more causes a pronounced dyspnea in healthy persons. The increase in blood pressure is about 30 mm.

Deutsche medizinische Wochenschrift, Berlin

50: 33-66 (Jan. 11) 1924

Nature, Culture and Woman. H. Sellheim.—p. 33. Cont'd.
A Photochemical Seroreaction. L. Lange and G. Heuer.—p. 35. Cont'd.
Hematogenous Influenza Infection. K. Klinke.—p. 37.
*Acute Poliomyelitis. H. v. Renesse.—p. 38.
*The Cerebrospinal Fluid in Dyspnea. R. Meyer-Bisch.—p. 39.
The Anesthesia and Inflammation Question. W. Dölter.—p. 40.
*Wassermann Reaction and Contagiosity. Stern.—p. 41.
Erythrocyte Sedimentation Test. E. Rothe.—p. 44.
Cystoscopic Gastroscopy. W. Sternberg.—p. 46.
Empyema in a New-Born Infant. P. Ormos.—p. 47.
The Meinicke Versus the Wassermann Reaction. C. Kruchen.—p. 48.
*Gastro-Intestinal Diseases. H. Citron.—p. 48.
Postoperative Pneumonia. Grumme.—p. 50.
Treatment of Surgical Tuberculosis. T. Voeckler.—p. 50.
*Where and How Retrenchment Is Imperative. Ascher.—p. 52.
Distress of Physicians. S. Alexander.—p. 53. Conc'n.
R. Koch's Diary.—p. 55. Cont'n.

Acute Poliomyelitis.—Renesse's observations indicate the probability of transmission of poliomyelitis by flies (*Stomoxys calcitrans*, the common stable-fly).

The Cerebrospinal Fluid in Dyspnea.—Meyer-Bisch examined the cerebrospinal fluid in eighteen patients with labored breathing and hypertension—mostly due to chronic nephritis. The concentration of glucose and chlorids was high, sometimes independently of the concentration in the blood. The pressure of the fluid was also high, and thirteen of the patients were almost completely relieved from their dyspnea by the lumbar puncture. He believes, therefore, in the existence of dyspnea of cerebral (bulbar) origin.

Wassermann Reaction and Contagiousness. — Stern estimates the frequency of false positive Wassermann reactions in nonsyphilitics at 2 per cent. A negative reaction does not exclude contagiousness, nor is a positive reaction a sign of it. No one to date has demonstrated infection by tabetics or paralytics. The Wassermann reaction is very valuable as one of the signs, but no decision can be based on it alone—especially not on one examination.

Gastro-Intestinal Diseases.—Citron has found gastric pains not infrequently in hyperthyroidism. Pains which stop immediately after lying down are usually due to enteroptosis. The total acidity is usually normal in cancer. Extremely high total acidity speaks for a benign stenosis. Microscopic rem-

nants of previous food are frequent in cancer. Examination of the stomach contents for blood must be preceded by neutralization of the hydrochloric acid, as this acid inhibits the benzidin reaction.

Where and How Retrenchment Is Imperative.—Ascher's protest against the proposed reduction of the staffs of the state public health services was summarized in the News department, Feb. 9, p. 482.

Klinische Wochenschrift, Berlin

3: 49-96 (Jan. 8) 1924

*"Bayer 205." J. Morgenroth and R. Freund.—p. 53.
*Hippuric Acid Metabolism. J. Snapper.—p. 55.
*Respiration of Cancer Cells. S. M. Neuschlosz.—p. 57.
*Ingestion of Sugar and Hydremia. R. Meyer-Bisch.—p. 60.
*Humoral Transmission of Impulses. H. Bohnenkamp.—p. 61.
Chemistry of Heart. E. Emmerich and G. Domagk.—p. 62.
*Influenza Meningitis. P. Schmidt and M. Weinberg.—p. 66.
The Thalamus in Catatonia. E. Fünfgeld.—p. 69.
Action of Mercuric Chlorid. E. Krabé.—p. 70.
Respiration and Plethysmogram. Dessecker and Steinhausen.—p. 71.
Deforming Osteitis. A. Gütschow and F. Walter.—p. 71.
Liver Function Tests. G. Lepehne.—p. 73.
*Increase of Breast Nursing. A. Schlossmann et al.—p. 79.

Trypanosomiasis of Mice and "Bayer 205."—Morgenroth and Freund found that "Bayer 205" has a specific inhibiting action on the formation of "serum-fast" strains which would cause recurrences. It is especially clear in the use of extremely small doses. The animal is completely cured as soon as the trypanosomes have disappeared from the blood. On the other hand, Freund obtained a strain which is resistant against "Bayer 205," and at the same time against trypan blue.

Hippuric Acid Metabolism.—Snapper found in healthy subjects an excretion of 5 gm. of hippuric acid within twelve hours after ingestion of 5 gm. of sodium benzoate. The urine may contain as much as 2 per cent. of the acid. Pneumonia, occlusion of the common bile duct or bile fistulas did not change the results.

Respiration of Cancer Cells.—Neuschlosz used Lipschitz' m-dinitrobenzene method for determination of the reducing power of cells of various tissues and a sarcoma of rats. He found a lowered respiration of tissue cells, except the spleen, in rats bearing tumors. Narcotics, silver and mercury salts lower nonspecifically the respiration. Potassium cyanid lowers the reducing power of normal tissues, but not of sarcoma, while iron increases the reducing power of normal cells much more than of sarcoma cells. Thus the energy-producing reaction of sarcomas resembles fermentation. Epinephrin enhances the reduction in normal cells and lowers it in sarcoma. Thyroidin increases both, especially the latter.

Ingestion of Sugar and Hydremia.—Meyer-Bisch observed in healthy and icteric subjects a dehydration of the blood after ingestion of 100 gm. of levulose. Refractometric determinations showed as much as 1.2 per cent. more serum proteins. This symptom was present only in about one half of diabetics. Glucose produced a similar change in dogs and rabbits, but not in man.

Humoral Transmission of Impulses.—Bohnenkamp reports negative results with Löwi's method of humoral transmission of impulses of cardiac nerves.

Influenza Meningitis.—Schmidt and Weinberg found influenza bacilli repeatedly in the cerebrospinal fluid of a child, which suffered from leptomeningitis after an accident. They believe that the hemorrhagic infiltration of the membranes caused by the injury was essential for the growth of these hemophilic bacilli.

Increased Prevalence of Breast Feeding.—Schlossmann's figures demonstrate the rapid increase in the percentage of breast-fed infants. "The royal highnesses who nurse their own children do more for child welfare in general than those who are patronesses of asylums for infants."

3: 97-128 (Jan. 15) 1924

Insulin. H. Staub.—p. 97. Begun p. 49.
*Hippuric Acid in Nephritis. J. Snapper and A. Grünbaum.—p. 101.
Experimental Research on Rickets. A. Eckstein.—p. 104.
*The Heart in Pregnancy. R. Weiss.—p. 106.
*Kupffer's Cells in Jaundice. O. Kanner.—p. 108.
*Arsenic and Metabolism. E. Kramár and J. Tomcsik.—p. 111.
*Sensitiveness of the Cornea. F. Kant and H. Hahn.—p. 112.
Roentgen Examination of Duodenum. N. Ratkóczi.—p. 113.
Observations in Sedimentation Tests. F. Blumenthal.—p. 114.
Adsorption of Noncoagulable Nitrogen. J. H. Caseão de Anciães.—p. 115.
Dermatomeuromyositis. C. Rosenthal and H. Hoffmann.—p. 115.
*Kidney Function Tests. M. Rosenberg.—p. 116.
Colloids and Growth. A. T. Czaja.—p. 119.

Hippuric Acid in Nephritis.—Snapper and Grünbaum investigated the elimination of hippuric acid after ingestion of 5 gm. of sodium benzoate in various affections of the kidneys. In nephrosis, arteriosclerosis and other conditions without retention of urea, about 5 gm. was eliminated within twelve hours, the same as in normal subjects. In uremic conditions (over 1 gm. urea per liter) the elimination was protracted. This is due only to the inability to concentrate, and not to slower synthesis in the kidneys. The hippuric acid content of the blood increases notably. If the patient eliminates more water, the hippuric acid excretion is greater.

The Heart in Pregnancy.—Weiss found in eight women in the last weeks of pregnancy a normal blood pressure and an increase between 45 to 85 per cent. of the output of the heart. The utilization of oxygen was diminished. The increase in the blood output is only partly caused by the increased metabolism. Part of it is due to changes in the circulation (broader vessels, increased blood volume, and decreased viscosity).

Kupffer's Cells in Jaundice.—Kanner saw in mechanical jaundice bilirubin in Kupffer's cells before and independently of the other cells of the liver. In a case of hereditary jaundice, the Kupffer cells were free from the pigment. He believes that they do not form bilirubin. There is no valid reason so far against the theory of formation of bilirubin in the main cells of the liver.

Arsenic and Metabolism.—Kramár and Tomcsik observed an increased amount of phosphates, acidity and ammonia in the urine of the majority of patients being treated with arsenic. This confirms Liebesny's and Vogt's observations on the respiratory metabolism which demonstrated a lowering of the oxidation, as a cause of the anabolic action of the drug.

Sensitiveness of the Cornea.—Kant and Hahn confirm Goldscheider's and Brueckner's observations on the presence of a tactile sense in the cornea and conjunctiva. Its threshold, however, is very near to that of pain.

Kidney Function Tests.—Rosenberg recommends the dilution and concentration test as sufficient for practical purposes. Only a measuring glass, an areometer and eventually scales to weigh the patient are necessary. Ambard's coefficient is valuable in patients with normal or slightly increased blood urea.

Medizinische Klinik, Berlin

20: 1-36 (Jan. 6) 1924

*Thyroid Treatment. H. Curschmann.—p. 1.
*Insulin. T. Brugsch.—p. 3.
Diagnosis of Affections of Lungs. R. Jaksch-Wartenhorst.—p. 5.
Insulin in Diabetic Cataract. A. Elschnig.—p. 7.
*Treatment of Syphilis of Auditory Nerve. M. Krassnig.—p. 7.
*Disturbance of Orientation. G. Herrmann.—p. 9.
Lesions of Parietal and Occipital Lobe. O. Pötzl.—p. 10.
*Tar Cancer. J. Fabry.—p. 13.
*Enhancing the Action of Mercuric Chlorid. Joachimoglu.—p. 14.
American Research on Tissue Cultures. K. Brandenburg.—p. 18.
Results of Fright from Accident. E. Stier.—p. 19.
Progress in Surgery. E. Nordmann.—p. 23.
History of Depressive Conditions. J. E. Kayser-Petersen.—p. 34.

Thyroid Treatment.—Curschmann emphasizes the practical necessity of the possibility of action of organotherapeutic preparations when taken by mouth. So far only thyroid preparations fulfil this condition. He prefers small doses. Constipation may be the only sign of hypothyroidism, and is in such cases promptly relieved by organotherapy. In obesity of thyroid origin, small doses are sufficient. In other forms, the dosage would have to be so large that it would cause symptoms of intoxication.

Insulin.—Brugsch recalls Pflüger's overcritical rejection of Minkowski's theory. He believes that this was the only reason why the discovery of insulin did not follow immediately Minkowski's experimental diabetes. He found that the diastatic function of the liver is not inhibited by the insulin. Epinephrin is by no means an antagonist of insulin.

An emulsion of 1 gm. of surviving liver produces in one hour in the incubator 1.4 mg. glucose and 1 mg. lactic acid. A liver from a pancreatectomized animal produces the same amount of lactic acid and 3 to 4 mg. sugar. When he injected insulin, the lactic acid figures decreased to zero and there was a loss of glucose instead of an increase. He believes that the dihexosephosphoric acid has the same significance for the liver as it has for muscles, and that insulin activates an oxybiotic ferment, which burns sugar and forms glycogen from lactic acid and the fatty acids.

Malaria Treatment of Syphilis of the Auditory Nerve.—Krassnig examined the fifteen patients with tabes and general paralysis treated with malaria. The hearing remained impaired in seven of them. Eight were distinctly (three very much) improved.

Disturbance of Orientation.—Hermann describes a patient with lesions of the right angular gyrus. The most striking feature was his inability to grasp objects lying in the opposite side of his field of vision.

Tar Cancer.—Fabry describes warts in men who are employed in pressing hot tar and coal dust into bricks. The warts are perfectly smooth even when the cancer begins to develop.

Enhancing the Action of Mercuric Chlorid.—Joachimoglu adds to mercuric chlorid a double amount of acid sodium sulphate. It doubles the disinfecting action of the mercuric chlorid by acidifying the medium and by preventing the formation of albuminates.

20: 37-70 (Jan. 13) 1924

*Gonorrhea. Stümpke.—p. 37.
*Tendon Transplants. M. Katzenstein.—p. 41.
Köhler's Disease of Metatarsal Bone. W. Altschul.—p. 42.
Periarteritis Nodosa. F. Sacki.—p. 44.
Lilienfeld's Roentgen Tube. F. Bardachzi.—p. 47.
Rupture of Aorta. B. Uhles.—p. 49.
*Skull Percussion. E. v. Thurzó.—p. 50.
Preventive Treatment of Diphtheria. W. Bieber.—p. 51.
Insurance Medicine. P. Horn.—p. 56. Begun p. 21.
Health Insurance in England. R. Güterbock.—p. 68.

Gonorrhea.—Stümpke points out that gonorrhea with a long incubation period and mere mucous secretion is sometimes very difficult to cure. A persisting cystitis is too frequently tuberculous. The same etiology is to be thought of in epididymitis.

Tendon Transplants.—Katzenstein forms a new tendon from fascia or the skin and connects it with the paralyzed muscle and with a healthy muscle situated proximally to it. If a suitable muscle is chosen—as for example, the quadriceps for a paralyzed peroneus muscle—the patient is able to use the extremity right away. No permanent harm is done even if the operation—which requires rigorous asepsis—fails, or if a previously grafted nerve "takes" at last. He had twenty-five favorable results in his thirty operations of this kind.

Skull Percussion.—Thurzó recommends Benedek's auscultatory percussion on a metal plessimeter for localization of adhesion of the meninges. It gives especially clear results after intraspinal insufflation of air. He describes a case in which a subarachnoid cyst inducing jacksonian epilepsy was located by this means.

Wiener klinische Wochenschrift, Vienna

37: 27-54 (Jan. 10) 1924

*Experimental Encephalitis. F. Silberstein.—p. 30.
Misleading Roentgenography in Pregnancy. P. Werner.—p. 32.
Retrograde Incarceration. H. Lehmann.—p. 33.
Droplet Infection in Diphtheria. K. Jellenigg.—p. 35.
*Tuberculous and Epidemic Meningitis. E. Stransky.—p. 36.
Perforation of the Uterus. E. Frommer.—p. 37.
Campaign Against Venereal Diseases. E. Finger.—p. 39. Begun p. 14.

Experimental Encephalitis.—Silberstein continues and confirms Fuchs' research on encephalitis in dogs. Fuchs had considered the meat intoxication in dogs with Eck's fistula as encephalitis, and he had been able to transmit encephalitis from a cat that had been fatally poisoned with guanidin. Silberstein explains these facts in accordance with Flexner's and Amoss' experiments on the increased susceptibility of animals in which the meningeal membranes had been nonspecifically irritated. He produced encephalitis with filtered nasal secretions of some apparently healthy dogs, and obtained an antiserum by prolonged immunization of rabbits.

Tuberculous and Epidemic Meningitis.—Stransky describes a case of tuberculous meningitis which developed after an attack of epidemic meningitis in the same patient.

37: 55-78 (Jan. 17) 1924

*Insulin Treatment. L. Pollak.—p. 55.
*Drainage of Peritoneum. P. Albrecht.—p. 60. Begun p. 27.
*Cancer in Gunshot Scar. E. Just.—p. 63.
Pyocyaneus Meningitis. H. Schneider.—p. 65.
*Production of Tetanus Antiserum. R. Kraus.—p. 67.
Vitamin C. J. Koopmann.—p. 68.
Bullet Wound of Uterus. R. Stiglbauer.—p. 69.
"Regulation of Therapeutic Abortion." K. Neuwirth.—p. 70.
Sickness Desired as Basis for Parasitic Existence. R. Michel.—p. 70.

Insulin Treatment.—Pollak reports a relative failure of insulin treatment of a diabetic with polyneuritis and toxic goiter. The insulin acted better after irradiation of the thyroid. Injections of insulin have an influence on the water metabolism. Edema may occur. He thinks it possible that insulin acts on the occlusive mechanism of the liver veins recently discovered by Pick and Mautner.

Drainage of Peritoneum.—Albrecht emphasizes the practically universal conviction that efficient drainage of the peritoneal cavity is impossible. In purulent peritonitis, the source of the infection has to be removed, the bleeding carefully arrested, and every defect of the peritoneum covered. If it is impossible to remove the source of infection, it must be brought outside the peritoneum and kept open—but this does not drain the peritoneal cavity. Drainage may do harm in the first forty-eight hours. It is necessary if the peritonitis is of several days' duration.

Cancer in Gunshot Scar.—Just describes the history of a patient with squamous cell cancer. It developed in a scar on the hand four years after a shell wound which had required three months to heal.

Production of Tetanus Antiserum.—Kraus found in the blood of old horses diphtheria antitoxin, and in the blood of old cattle tetanus antitoxin. This is the reason why it is possible to start with larger doses of the toxins in older animals. Beef serum only rarely produces serum sickness. Therefore it is preferable to horse serum, especially in tetanus, when the titer is sufficiently high.

Zeitschrift für Kinderheilkunde, Berlin

36: 295-372, 1923

Reactivity in Scurvy. H. Abels.—p. 295.
*Gluteal Erythema. H. Kreutzer.—p. 324.
*Sugar Elimination in the New-Born. H. Langer.—p. 332.
*Rheumatic Endocarditis. J. John and E. Nobel.—p. 335.
Acute Intestinal Occlusion. I. Bedö.—p. 366.

Gluteal Erythema.—Kreutzer produced gluteal erythema in infants by casein or salts which make the urine alkaline. Concentration of the urine is an adjuvant factor.

Sugar Elimination in the New-Born.—Langer considers every appearance of a reducing substance in the urine in infants as an alarming symptom. He does not believe in physiologic lactosuria of the new-born.

Rheumatic Endocarditis.—John and Nobel reexamined seventy-eight patients who had been treated from five and a half to eighteen years before at Pirquet's clinic for chorea, polyarthritis or erythema nodosum. Of the first two groups, 43 and 47 per cent. remained healthy; of the last, 66 per cent. All the six cases of combination of chorea and polyarthritis observed had valvular lesions.

Zeitschrift für Tuberkulose, Leipzig

39: 161-240 (Dec.) 1923

*Syphilis and Tuberculosis. J. W. Samson.—p. 161.
*Treatment of Pleural Effusion. N. Lunde.—p. 168.
Classification of Pulmonary Tuberculosis. A. Sternberg.—p. 178.
*Disturbances of Urination in Tuberculosis. F. v. Kovàts.—p. 185.
Disinfection of Sputum. Bofinger.—p. 190.
Apparatus for Disinfection of Sputum. S. Ohmura.—p. 192.
Tuberculosis as War Disease. A. Bauer.—p. 194.

Syphilis and Tuberculosis.—Samson examined eighteen syphilitics with tuberculosis and nine tuberculous patients who had acquired syphilis. It seems that this association has not much influence on the prognosis of tuberculosis.

Treatment of Pleural Exudates.—Lunde treats patients suffering from pleural effusion by reducing the sodium salts in the food, and giving daily up to 4 teaspoonfuls of the following solution: calcium chlorid, 30 gm.; potassium acetate, 60 gm., and water, 285 gm. In other tuberculous patients he prescribes one teaspoonful of this solution in a glass of hot water every day or every other morning. He supplements this with 5 gm. of cod liver oil in the evening. He observed a rapid decrease in the moist râles and expectoration under this treatment.

Disturbances of Urination in Tuberculosis. — Kováts observed in tuberculous patients functional disturbances of urination, such as pollakiuria and enuresis. The symptoms disappeared after specific treatment.

Zeitschrift für urologische Chirurgie, Berlin

14: 105-200, 1923

*Movements of the Vas Deferens. Tzulukidze and Simkow.—p. 105.
Surgical Anatomy of the Epididymis. A. Tzulukidze.—p. 113.
*Malignant Tumor of the Kidney. R. Allemann and R. Bayer.—p. 119.
Glandular Pyelitis. H. Brütt.—p. 157.
Tooth in Dermoid Mistaken for Ureter Calculus. Alexander.—p. 163.
*Vasectomy with Prostatic Obstruction. S. von Stapelmohr.—p. 177.
Treatment of the Seminal Vesicles. Schwarz and Simkow.—p. 180.

Movements of the Vas Deferens.—The research on dogs, cats and guinea-pigs failed to demonstrate any peristaltic movements in the vas deferens, but the response to electric stimulation seems to indicate that it might occur.

Cancer of the Kidney.—Allemann and Bayer give the details of 38 cases, including 27 of hypernephroma, with nephrectomy in 25. About 14 per cent. died at or soon after the operation, but 60 per cent. survived for two or more years. They comment on the peculiar tendency to metastasis in bone tissue with cancer of the mamma, thyroid, prostate and kidney—all glandular organs. Capillary embolism is probably the explanation. In one of the cases described and in some cited, the metastasis was single and was successfully removed with the primary tumor. The general practitioner first consulted is apt to waste precious time, especially when the prostate seems to be responsible for the disturbances or the hematuria is bilateral as in one of their cases with bilateral hypernephroma. Both hypernephroma and cancer may develop in a kidney without much enlargement of the organ. In only 4 of their hypernephroma cases was the tumor as large as a child's head and in 2 carcinoma cases. Tenderness is instructive. Gallstones and a movable kidney may present a misleading picture. There may be hematuria years before a tumor becomes manifest. The hematuria may occur after physical exertion or without known cause, and it may be brief or last for several days or weeks, rebellious to all measures, and then it may disappear suddenly and not reappear for years. In one case there had been hematuria and pyuria at 19, then an interval of apparent health till the age of 27. Recurring hematuria with colic pains was ascribed to calculi, but an operation at 36 disclosed a hypernephroma with cystic degeneration to such an extent as to amount to a spontaneous clinical cure. In another case there was sudden profuse hematuria, with colic pains for a day. A year later the hematuria returned, with vomiting and diarrhea, and kept up for a week. The roentgen findings were negative, and four years free from symptoms followed. Then came hematuria with severe pains and the hypernephroma with numerous metastases was discovered. When the hematuria has subsided the patients forget it, and fail to consult a physician further. Or if a physician is consulted for any cause, the hematuria history is not mentioned. The colic pains from small blood clots in the pelvis or ureter are ascribed to calculi, and when search for such gives negative results, the matter is dropped, no one thinking of the necessity for cystoscopy. This would reveal the true source of the bleeding.

Vasectomy with Hypertrophied Prostate. — Stapelmohr resects the vas as a preliminary to prostatectomy to insure drainage of urine by this simple and harmless measure. It has a still further purpose in aiding to reduce congestion in the prostate. In fifteen cases in which this preliminary bilateral vasectomy was applied, epididymitis never developed even when the retention catheter had been used for six weeks or more.

Zentralblatt für Gynäkologie, Leipzig

48: 1-60 (Jan. 12) 1924

*The Starvation Toxicoses of Pregnancy. E. Opitz.—p. 2.
*Sudden Death of Fetus Past Term. A. Mayer.—p. 10.
Penalties for Abortionists. R. T. von Jaschke.—p. 13.
*Pregnancy After Ovarian Transplantation. P. Sippel.—p. 15.
Use of Oxytocics and Hemostatics. C. H. Stratz.—p. 19.
*Fetal Heart Sounds. H. Schäffer and R. Fleischer.—p. 23.
Fetal Heart Sounds Audible at a Distance. Pfeilsticker.—p. 25.
Panhysterectomy for Actinomycosis. T. Schmidt.—p. 26.
Hydatid Cyst in Pouch of Douglas. G. Maroudis.—p. 28.
Death of Fetus at Term from Rupture of Vein on Fetal Side of Placenta. Rannenberg.—p. 30.
Fibroma in Pouch of Douglas. K. Schilgen.—p. 32.

Pregnancy Disturbances Manifestations of Starvation.—Opitz declares that the sudden demand for substances of all kinds to construct the fetus developing in the uterus drains the mother's tissues of these substances, and the result is liable to be a series of deficiency manifestations. This is the secret of the alleged toxicoses of pregnancy. There is no primary formation of any special toxin, but the drain from the developing fetus—the same as the drain from a rapidly developing cancer—upsets the metabolism, and toxins of various kinds may result secondarily. This explains the similarity of the reactions (stalagmometry, Abderhalden, high antitrypsin titer, complement fixation, etc.) in the pregnant and in malignant disease. His most convincing argument for this assumption of inanition as the cause of the alleged toxicoses of pregnancy is the analogy between their manifestations and those of known deficiency diseases, especially the starvation edema of the war and the *mehlnährschaden* of infants not getting enough fat. This assumption opens the portal for more effectual treatment of the disturbances of pregnancy. He presents arguments to prove that from the very inception of the pregnancy the center in the floor of the third ventricle which seems to control the water, sugar and sodium chlorid metabolism is modified by the fact of the pregnancy, and its action is switched to other tracks.

Death of Fetus Carried Past Term.—Mayer mentions that seven were boys of the eight children dying suddenly without known cause when labor was delayed past the normal term. Delayed labor calls for extra cautious supervision of the woman to ward off this sudden, apparently causeless death of the fetus. Possibly it might have been better in his cases to have delivered the woman artificially. Three of the eight women showed signs of hypothyroidism, and, in any event, the endocrine gland functioning should be investigated when labor is retarded.

Pregnancy After Ovary Grafting.—Sippel reports from Bumm's service four cases in which previously sterile women conceived and passed through a normal pregnancy after the sluggish function of the otherwise normal ovaries had been roused and speeded up by transplantation in the abdominal wall (prevesical space) of two disks of ovarian tissue still warm from the body of another woman. The grafts were taken from women being hysterectomized for cancer, myoma or pulmonary tuberculosis.

To Reenforce the Fetal Heart Sounds.—The obstetric stethoscope is fastened to the woman's abdomen and a microphone attached—the principle the same as in listening for mines in warfare. In one case the sounds thus reenforced at the eighth month were audible throughout the hall.

Zentralblatt für innere Medizin, Leipzig

45: 1-28 (Jan. 12) 1924

Insulin and Diabetes. R. Jaksch-Wartenhorst.—p. 2.
*New Diets in Diabetes. L. R. Grote.—p. 3.

New Diets in Diabetes.—Grote reviews the newer methods of dietetic management of diabetes. Fasting is of use in the beginning of the treatment. Petrén's method, using extremely small amounts of proteins (even less than 25 gm.) and very large amounts of fat gives excellent results. The eventually resulting acidosis is slight and transitory. He believes that the assumption of inevitable ketogenesis from fats is untenable.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 105-204 (Jan. 12) 1924

*Hypnosis in Treatment of Neuralgia and Neuritis. S. Koster.—p. 110.
*Metastasis with Experimental Cancer. S. E. de Jongh.—p. 127.
*Tetany. H. de Levie.—p. 133.

Latest Micromethods for Testing Blood Sugar. Coppens.—p. 153.
Tuberculous Lesions on Upper Gum. K. A. Rombach.—p. 156.
Fetus Strangled by Overlong Cord. A. A. Hueber.—p. 157.

Hypnosis in Therapeutics.—Koster remarks that sciatica, sciatic neuritis and neuritis of the lumbosacral plexus are peculiarly amenable to treatment by hypnosis, even without adjuvants. He summarizes from the literature sixteen cases cured by this means, and twelve out of fifteen in his own practice. One other patient was materially improved, but two others failed to show any benefit from the treatment. The course of treatment included from two to five applications of hypnosis, and the patients were dismissed clinically cured in from nineteen to sixty-three days, an average of thirty-nine. In a parallel series of fifteen cases treated with ordinary measures, only five were cured and the average stay in the hospital was forty-eight days. He argues that the mind has a great deal to do with all organic affections, and, by excluding the psychic element by hypnosis, we not only relieve subjective symptoms but induce conditions more auspicious for the healing of the organic lesion. We may be able to arrest the pain in a tabetic crisis or with gastric cancer almost as effectually as with morphin, and we can likewise arrest or alleviate the pain in angina pectoris.

Metastasis with Experimental Cancer.—De Jongh found 18 metastases in 8 of his 19 white mice with large primary tar cancers. The metastasis was in the glands in 4, the lungs in 6, and the kidney in one. In 59 mice with transplanted tar cancers, 14 had metastasis in the lungs and 3 in glands.

Tetany.—De Levie expatiates on the importance of the difference between the rapid or the sluggish response of the different tissues to electric stimulation. He explains that an electric current causes a shifting of the ions in the nerve or muscle, and the reaction is observed only when the concentration of ions reaches a certain level. He has coined the term tachytropism to express this varying excitability of the different tissues. From this standpoint, tetany is a negative tachytropic process, entailing heterochronism between nerve and muscle. Calcium and chloral are positive tachytropic stimulants, which explains the benefit from them in tetany. He says that this conception of tetany explains all its phenomena on the basis of the physical excitability of the tissues. The toxins of tuberculosis and of acute infectious diseases may induce a negative tachytropism. Epinephrin is the only endocrine organ extract that has been studied from the standpoint of its action on the electric excitability of nerve and muscle, and even this has never been investigated after removal of the parathyroids or other endocrine organ.

1: 205-320 (Jan. 19) 1924

Medical Education in England. G. van Rijnberk.—p. 206.
*Function-Delaying Element in Embryonal Development. S. T. Bok.—p. 210.
The Earning Capacity of the Tuberculous. B. H. Vos.—p. 226.
*Objective Determination of Blood Pigment. R. J. Wolvius.—p. 237.
The Significance of Intrapleural Pressure in Detection of Infanticide. Hulst.—p. 246.
*Otosclerosis Developing During Pregnancy. H. Burger.—p. 252.
The Newer Methods of Treating Diabetes. J. Koopman.—p. 256.

A Function-Delaying Element in Embryonal Development.—Bok is inclined to regard the function-delaying element he describes as the main factor in differentiation of species. The longer function is postponed, the better prepared the organ for the function when it does develop.

Objective Determination of Blood Pigment.—Wolvius uses an extinctometer. The absorption of the heat from a light passing through the fluid indicates the pigment content as compared with a control fluid.

Development of Otosclerosis During Pregnancy.—Burger was consulted recently by a woman with a family history of severe otosclerosis. She had never had any symptoms of it before, but six weeks after conception intense tinnitus and progressive deafness had developed in three weeks. He queries whether with such a family history and such symptoms, the interruption of the pregnancy might be advisable to arrest the further progress of the otosclerosis. In all probability, he says, the pregnancy is the direct cause of the disturbances, and from the medical standpoint, it might be better to interrupt the pregnancy and sterilize the woman, but no one can foretell the outcome.

Mededeel. van den Burg. Geneesk. Dienst, Java

213-326, 1923. English Edition

*Frambesia in the Dutch East Indies. C. W. F. Winckel.—p. 213.
Case of Schistosomiasis Japonicum. H. Mengert-Presser.—p. 227.
Sanitation of Malarial Plain. Mangkoewinoto.—p. 236.
*Prenatal Hookworm Infection. C. D. de Langen.—p. 275.
*The Way in Which Plague Spreads Over Java. L. Otten.—p. 278.
The Differential Leukocyte Count in the Tropics. C. D. de Langen and A. Lichtenstein.—p. 293.
Distribution of Mosquitoes in East Indies. E. Rodenwaldt.—p. 299.
Nervous Symptoms in Five-Day Fever. C. D. de Langen and F. H. van Loon.—p. 305.
Idiopathic Hypereosinophilia. C. D. de Langen and M. Djamil.—p. 316.

The Campaign Against Frambesia in the Dutch East Indies.—Winckel states that the systematic control of endemic yaws was started in Java late in 1919, and to date there are official records of 890,000 injected with neo-arsphenamin, while many others have been injected without official registering. In certain regions the disease is a regular scourge, not only disfiguring and mutilating but incapacitating for work, especially when the lesions are on the feet. Winkler regards it as an essential part of the propaganda, without which lasting success is not possible, the defraying of the expense by the people themselves. This has three main advantages: firstly, the educational, teaching the people that the government does not give away everything for nothing but may reasonably expect something in return when the people are more or less well to do. Neo-arsphenamin in yaws is peculiarly adapted for teaching this, as its effects are so prompt and so striking that wide circles of the populace are impressed. Another advantage is that the campaign undertaken and progressively increasing has been practically no expense to the government. The contributions of the population amount already to several hundreds of thousands of guilders; only in a few districts the owners of the sugar factories or plantations paid for the indigent part of the population. A third advantage is that by asking payment of those who can afford to pay, the number applying for treatment has multiplied enormously. The experience has constantly been that when after some propaganda, the payment system was introduced, the crowds flocking for treatment to the injection centers became ten times more numerous. Many who cannot walk are brought in sedan chairs or baskets by their friends. The dose for an adult native is never over 0.45 gm. and the injection is made in the arm almost always. With two skilled male nurse assistants and civil service lay assistants to hold the arm and attend to the payment, 600 or 800 intravenous injections can be made in a day. The doctor's chief difficulty is to exclude scabies, ringworm, leprosy and similar affections among the applicants. An injection is sometimes made when the lesion is differentiated as tropical ulcer, as surprising improvement is often noted. A further advantage of this yaws campaign is that it has helped to educate the 45,000,000 natives of the Dutch East Indies to respect medical science and medical officials. The single injection of neo-arsphenamin does not cure the frambesia, but it abolishes the sources of infection so the disease will grow less prevalent in time. In the village of Pangdeglang it has been actually exterminated. The article is illustrated.

Prenatal Infection with Hookworm.—The feces of new-born infants are not often examined for helminths, but de Langen relates that he found three hookworm ova in two slides from the stools of a native infant, 6 days old. Another doctor found similar ova in an infant's second stool, and another in the stools of a week old child. He assumes that the larvae in the mother's body must have reached the placenta and penetrated into the intestinal canal of the fetus.

Spread of the Plague.—Otten is head of the antiplague service in Java, and his maps and other data apparently sustain the assumption that passenger traffic does not spread plague. It is spread by market traffic; the foodstuffs bought at market may have been stored for months, and during this time have served as food and nesting places for the house rat. When purchased and carried home, they contain infected fleas from these rats, and they spread the plague. He has traced rat plague from place to place, inoculating spleens and fleas of rats caught in forty-seven villages on one road, and in 25 per cent. of the villages no instances of human plague were known in nine months although rat plague was common.